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THE

Independent Practitioner:

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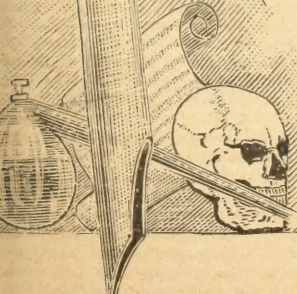
MEDICINE, SURGERY, OBSTETRICS, DENTISTRY, PATHOLOGY
AND POPULAR SCIENCE.

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Original Communications.

We are not responsible for the opinions expressed by contributors.

ARTICLE I.

REMOVAL OF STONE FROM THE BLADDER BY "LITHOTRITY AT A SINGLE SITTING" (BIGELOW'S OPERATION), COMPLICATED BY AN ENCYSTED STONE, WHICH SUBSEQUENTLY GAVE FARTHER AND CHARACTERISTIC TROUBLE.

BY F. N. OTIS, M. D.

Clinical Professor in the College of Physicians and Surgeons, New York.

Mr. E., merchant, aged 58, had suffered for over a year previous with frequent and more or less painful urination. Urine passed every two hours during the day and once or twice at night: pain and frequency both aggravated by riding in wagon, or on horseback. The stream stopped suddenly at times, but at other times it was large and free. Examination of the urine showed a plentiful deposit of pus, but no blood or evidence of kidney trouble. Examination of the rectum showed slight enlargement of the prostate.

In examination of the bladder, with Thompson's searcher, a stone was struck. A small lithotrite was then introduced to measure the size of the calculus. On opening the instrument at the *bas-fond* of the bladder, and then closing, a stone was grasped at five-eighths inch, and on moving the lithotrite (still grasping the stone), another stone was struck. The size of this second stone was not then ascertained.

At 3 p. m. of the same day (it having been determined to remove the

stones by "rapid lithotritry at a single sitting"), the patient was etherized by Dr. Vermilyea; assistants in the operation, Drs. L. B. Bangs and J. W. Swasey. Dr. B. W. Dudley, of Lexington, Ky., was also present. The first grasp of the lithotrite was at a little over half an inch. Three crushings only were made, when the fragments seemed so small that aspiration was determined upon. This was effected by the intro-



DR. OTIS' MODIFICATION OF PROF. BIGELOW'S EVACUATING TUBE.

duction of my modification of Bigelow's evacuating tube 31. f,* and with Bigelow's aspirator the *debris* was soon and completely removed. The calculus was evidently recent and phosphatic, in amount about a drachm. This apparently disposed of one of the stones. The lithotrite was again introduced, and after a prolonged search only a fragment, about a third of an inch in diameter, could be found. Two more crushings effectually disposed of this, and the question arose as to what had become of the second calculus that was certainly present at the preliminary examination. It was, however, finally struck on the right side of the bladder, about an inch or so above the neck, but no coaxing could engage it in the jaws of the lithotrite. Various expedients were tried in various positions of the patient, but the stone, which was distinctly and easily felt in one place only, and that the one above referred to, could not in any way be coaxed into the jaws of the lithotrite. The conclusion was therefore irresistible that the stone was encysted, or imbedded in the walls of the bladder at that point, and could not be evacuated with the means then at our command.

Recovery from the operation occurred in this case without constitu-

* Prof. Bigelow has given preference to straight evacuating tubes in place of those more or less curved, is more effective in removing calculus material. I have frequently verified this in my own experience; but I have also found a greater difficulty in entering the bladder with them, especially in cases complicated with enlarged prostate. In such cases it has usually been necessary to introduce a finger into the rectum before the prostatic urethra could be traversed. In order to reduce the friction from introduction of instruments to the minimum, I have modified the straight evacuating tube of Prof. Bigelow by adding a small curved projection, which with all the advantage of the former I have found more easy of introduction, and hence less likely to be a source of obstruction and consequent irritation in entering the bladder, and also to prevent in greater degree the closure of the opening in the tube, from the engagement of the mucous membrane in it during the progress of the evacuation.—From "Transactions of International Medical Congress—Discussion on Recent Advances in the Methods of Extracting Stone from the Bladder." Vol. II. Page 322.

tional disturbance of any sort. Urination decreased in frequency, and by the third day after the operation the patient urinated not oftener than once in four hours, and without pain. He went to his home in the country on the seventh day, with entire freedom from any annoyance connected with his urinary apparatus.

On the 5th of May following (four months after the operation), the patient called, complaining again of frequent burning micturition, but no sudden stoppage of the stream. On examination with the lithotrite, and without ether, stone was at once struck on the right side, at about an inch from the vesical orifice. Instrument passed to the *bas-fond* and opened, but was closed without engaging the stone. This was repeated several times, completely rotating it, but without striking the calculus. It was then directed to the right side, and to the point where the encysted stone previously referred to had been located, and by the same maneuver the stone was engaged at half an inch, but the instrument could not be rotated, the stone being evidently attached to the wall of the bladder at this point. An easy crushing was made, and subsequently two fragments of about a third of an inch in diameter were separately picked up with the lithotrite in the region of the *bas-fond* and crushed. The *debris* was then aspirated and the bladder washed out, and subsequently no click (indicating remaining fragments) could be obtained. Again introducing the lithotrite, the calculus was struck, after some search, in the old position on the right side of the vesical neck, but careful and persistent effort, aided by a finger in the rectum, could not engage it in the jaws of the instrument. It was evidently encysted or in a sacculus of the bladder wall at this point.

Recovery from this operation also was prompt, all irritation ceasing in two or three days, and no further evidence of calculus was felt for nearly two months, when the same burning or micturition recurred with increased frequency, reducing the habitual interval of four or five hours to about two hours. Examination of urine showed a considerable catarrhal trouble, but gave no evidence of other trouble. Examination with the lithotrite found exactly the same condition as on the previous occasion. An accumulation of calculus material upon the encysted calculus had been sufficient to re-establish the vesical irritation. The same procedure for its removal which was adopted on the previous occasion was almost exactly repeated, and with almost exactly similar results.

On three subsequent occasions, at intervals varying from two to four months, the same accident has occurred, and has been relieved in the same way. There appears to be no prospect of permanent relief, except by a perineal section, through which, it seems probable, the encysted stone causing all the trouble might be reached, as in the case of J. C., operated on by me March 10, 1882, and published with illustrations in the *New York Medical Gazette* of April 8, 1882.

ARTICLE II.

SOME OF THE MORE COMMON RACHITIC DEFORMITIES.

BY V. P. GIBNEY, M. D.

Professor of Orthopedic Surgery in the New York Polyclinic.

The question which the practitioner more frequently than any other propounds to the members of my own specialty is: What shall I do for weak ankles, or bow-legs, or knock-knees, or other deformities known as rachitic? It seemed to me that a short paper on this subject—an answer to this question—might not be out of place.

It shall not be my province to discuss the causes and the mechanism of these deformities. That would consume too much space.

Given, for instance, a case of weak ankles in a child presumably rachitic. What shall be done? What will happen if nothing is done? Will the child grow out of it?

It matters much what the hygienic surroundings of such a child are. If it live in the country, or in a town where densely crowded tenement houses do not prevail—if in commodious quarters with play grounds free from the stench of decaying vegetation; if cleanliness is recognized as one of the cardinal virtues—springs, as a rule, are unnecessary. Of course the degree of deformity must also serve as a guide. The child may be, and generally is, fat and chubby, and is regarded as a large specimen for its age. Treat the rachitis on sound principles, recognizing that for all practical purposes rachitis may be defined as malnutrition. Keep the baby off the feet as much as possible, and let the case be under observation a few months.

Should, however, the case be in a family whose general mode of living and whose hygiene is aught but good, and should the child

itself show other signs of poor recuperation, then a support for the ankles can be easily constructed.

In the first place have a good shoe if possible, with a good broad shank and spring heel—immaterial as to whether it be laced or buttoned. Let a smith or shoemaker, under your own instruction, attach by means of rivets a piece of steel to the shank, curved up to the inner ankle, say from a half to three-quarters of an inch in width, according to the strength of the same. To this upright or steel counter have riveted, with a washer for motion, opposite the ankle another spring, narrower and extending to a calf band, to which it can be securely riveted. Any kind of leather or cloth will suit for covering, according to one's taste. Simpler still, a steel shank well arched can be fastened within the shoe, and this will answer admirably for cases not much exaggerated.

A great many weak ankles in children somehow right themselves, and if the tendency should seem contrary to this termination, one will be censurable in not providing against it.

Many cases of flat-foot in young girls and lads date directly from this period.

In very many children brought up in a large city a common deformity—bow-legs—comes on between the end of the first year and the end of the second. Not that some do not appear during the first few months of life, and some even beyond the third year. Yet in the former the treatment is very simple, and any parent even, under a little advice from the physician, can construct such splints or employ such manipulation as will overcome the deformity. The bones are generally susceptible to springing by moderate force. The impression among a large class of practitioners is that children with bow-legs outgrow the bending and ultimately come entirely straight. What foundation is there for such an impression? As a matter of fact, one sees, in this country at least, very few cases of bow-legs in the adult. The foundation is this: many cases are due to a simple relaxation of the ligaments about the knee-joint. These show a wide deviation at the knees, and the curve is a general one, extending from the groin to the malleolus. Such cases nearly always recover spontaneously. Very many have the chief curve in the middle and lower thirds of the leg, and, while the distance from knee to ankle is short, this curve seems very great, and the deformity is quite marked. As this distance increases while the child is "growing out of it" the chord of the arc be-

comes longer, and when adolescence is attained the curve seems, through the clothing, insignificant. It is really, however, present, and the deviation is just as great. I have examined many such curves, and my statement is based on fact.

This deformity, where it exists in the leg bones, should be corrected by means of springs, and for the physician who is remote from the ordinary appliances well padded splints extending from the inner condyle to the inner side of the heel can be readily employed together with a rubber bandage or adhesive plaster, or rollers even. It will not do the child, as a rule, any harm to keep it off the feet a few weeks or months even. The ordinary bow-leg springs of the shops, though, seem to me very ineffectual. They are attached to shoes, and very little pressure is applied against the convexity of the limbs. They are not worn at night and are thus further objectionable. A steel or leather sole plate with a heel cup attached can be readily constructed by any blacksmith, if other smiths are not in reach. To this heel cup steel springs—the one on the inner side extending to a point over the internal condyle, where a pad is attached; the other on the outer side two inches shorter, and connecting at its upper extremity with the inner band by a narrow steel band passing back of the calf—can be fastened by a rivet and washer opposite the normal tibio-tarsal joint. Then with a roller or a bit of canvas, the limb at its place of deformity can be approximated to the inner spring or bar from ankle to condyles. They need to be worn from four to twelve months.

If the child be over four years of age these will do no good even if worn indefinitely. Resort must then be had to osteotomy, if the deformity be great; otherwise let the case alone.

Knock-knees in rickety subjects are induced by relaxation of the ligaments at the knee—the internal lateral; by atrophy of the external and hypertrophy of the internal condyles; by antero-lateral curvature of the femur, or by hypertrophy upward of the inner head of the tibia.

It is seldom that one finds these conditions separate and distinct. They generally merge one into the other and contribute their respective parts to the production of the deformity.

In very young children the correction can be brought about by forced movements in the opposite direction several times daily. Even in older children, say from two to four years of age, much can be done by this mode of procedure. My friend Dr. Little, of London, advocates a very simple method, figured in his book on *In-Knee Deviation* (London,

1882. p. 115.) A disc of cork from one-half to three-quarters of an inch thick is covered with a layer of cotton-wool and sewed up with silk. This is placed between the internal condyles, and serves as a fulcrum, while each leg is grasped at the ankle by the manipulator's hand and both approximated. Gentleness should characterize the process, and each "sitting" should occupy a half-hour or so. Let it be repeated every three or four hours. The knee must not be allowed to flex. If longer traction is needed on the external lateral ligaments means for securing the feet together will readily suggest themselves to any practitioner. If the case be an intractable one, and seem not to yield any to the mechanical appliances, let the patient be retained under observation from this time until six or eight years of age. Then a supra-condyloid osteotomy (Dr. MacEwen) will as a rule be the best operation.

Pigeon-breast is a not uncommon result of rachitis, and can be overcome when not far advanced by the mother's hand properly directed. Let her several times a day make pressure over the sternum. The child's cries will all the better develop the lungs and assist in restoring the chest walls to normal shape. The hand failing, or the bones being at first too well developed, a spring like a truss-spring can be easily constructed and made comfortable after a few days' use.

What if the deformity is unrelieved?

Just what the ulterior disadvantages may be can only be a matter of speculation. Naturally one would suppose that a barrel-shaped thorax, or pigeon-breasted thorax, would interfere with the proper expansion of the lungs, and when such organs are attacked by disease all the capacity possible would be called into requisition. If the child be a girl, and expects to enter society, a pigeon-breast does not present an attractive figure.

There is another deformity due to rachitis about which many, both in and out of the profession, give themselves needless alarm. I refer to antero-posterior curvature of the spine—rachitic kyphosis. This can very readily be diagnosticated from vertebral ostitis or Pott's disease, inasmuch as it occurs in very young children (under eighteen months of age) and can be overcome by a moderate amount of traction. The deformity always occurs in the dorso-lumbar region, is a general curve very marked as the patient attempts to sit erect. The only treatment needed for this is the prone position, or even the dorsal. If the former, let the mother place the child across her knees, keeping them suffi-

ciently wide apart to allow the sternum to rest on one and the thighs on the other ; then with her hand or hands press upon the convexity of the curve. If in the dorsal decubitus the baby can be balanced on one of the mother's knees, the highest point of the convexity resting on the knee as a fulcrum. If the idea be clearly conveyed to the nurse or mother, a cure will follow in a few months, and no machinery will be necessary, not even a plaster-of-Paris jacket.

Lateral curvature of the spine proceeds from rachitis in this wise : the transverse processes are disturbed in their horizontal relationship by means of faulty position, one facet is mis-shapen a little, and this condition remaining, a rotation of the bodies is induced by the particular vocation in later years, the rachitic changes being the predisposing cause. Hence the importance of proper handling of babies suffering from rickets.

I have occasionally seen subluxation of the sternal ends of the clavicles regarded as rachitic, and many cases of delayed development are undoubtedly attributable to the great disease of mal-nutrition.

ARTICLE III.

**GARRETSON'S OPERATION FOR THE REMOVAL OF THE COCCYX
WITHOUT DISTURBANCE OF THE PERINEUM.**

BY S. PARKER COTTRELL, M. D.

The operation devised and practiced by Dr. Garretson, of Philadelphia, for the removal of the coccyx is one of such singular simplicity and apparently so absolutely free from danger of any kind, that it needs alone to be heard of to command universal adoption; this conclusion being the opinion of all who have seen the performance.

The instrument employed for the ablation of the bone is a circular bur revolved to the extent of ten thousand revolutions to the minute by means of the surgical engine. The patient being profoundly etherized and placed partly upon the abdomen, the index finger of the left hand is oiled and passed into the rectum, thus underlying the coccyx and supporting it. Next, a bistoury is sunk through the external soft parts, an object being to strike the bone midway between its apex and base. From this the cut is extended upward and downward, with the intention of exposing the length of the part to be removed. A suc-

ceeding step consists of the introduction of retractors, by means of which the soft parts are pulled away laterally, which retraction, aided by a few touches of the knife, exposes the periosteum. Here a chisel-shaped blade is used, the periosteum being incised along its middle line, and each leaf worked over to its own side; or, if preferred, this periosteal tissue may be scraped away with a raspatory. The bone thus exposed, the operator, still having the finger in the rectum, applies the cut face of the bur at a time when the instrument is in rapid rotation. If the coccyx be deeply situated, the sense of touch, as related between the rectal finger and the hand grasping the instrument, is now depended on exclusively as to direction. If, on the contrary, the bone is but lightly covered, the surgeon may be guided wholly by sense of sight. Five minutes, six or eight at most, suffices for the bur to convert the bone into dust, taking it away completely from the deep layer of its periosteal envelope, which layer it leaves undisturbed, expressing here the great features of the operation, which features are, first, non-interference with the attachments of the posterior perineum, and, second, a wound that is strictly of a superficial expression and meaning.

The powdered bone is carefully washed out of the cavity and the parts closed, with a view of securing union by first intention, a few threads, or a delicate tube, as happens to be most convenient, being placed in that extremity of the wound which adjoins the sacrum.

Doing so delicate an operation as this just described, depending alone on the sense of touch for the management of an instrument that is revolving ten thousand revolutions a minute, may not strike the reader unfamiliar with such character of instrumentation as so easy and simple a matter, but the doubt vanishes when it is understood that a bur working with such rapidity is not to be distinguished from another strictly at rest. The writer has seen Prof. Garretson do the operation twice. In the first case, the hand-piece was held precisely as one manipulates a pen in its holder when in the act of writing; in the second instance, the bone being situated at a depth of over two inches, the hand-piece was grasped firmly in the palm. Certainly no idea as to the probability of the instrument getting away, or doing ought but the will of the surgeon, entered the mind of any of the on-lookers at the operations referred to. The undisturbed under layer of periosteum, as it is seen and felt, lying in the depth of the wound, is a matter to excite enthusiasm on the part of a professional beholder. It

is next to impossible to associate the idea of danger with what is known to have been done.

Through the kindness of the family physician in attendance on the case having the deep coccyx, I am enabled to append report of progress for the first fourteen days.

Second day after operation: Patient without evidence of shock or derangement of any kind.

Third day: Considerable fever; pulse 120. Gluteal region of left side somewhat indurated. Patient restless.

Fourth day: Free suppuration at seat of tent. Pus watery, rather than laudable. Induration markedly lessened. Pulse, 97. Patient fairly comfortable; insists on being lifted to the commode.

Fifth day: Free suppuration. Slight chill.

Sixth day: Slight chill at same hour of morning. Free suppuration. Pulse, 90. Castor oil given at 10 p. m. Operated at 1 a. m. Relieved the patient of flatulency and of slight abdominal tenderness, of which she complained.

Seventh, eighth and ninth days: Discharge continues. Slight creeps each day at 11 o'clock. Pulse varying from 72 to 65. Tongue unduly dry. Administered dilute hydrochloric acid in doses of fifteen drops each three hours, and quinae sulphas, in doses of one grain at the same intervening periods.

Tenth day: No creep. Suppuration decreasing. Wound curing most satisfactorily.

Eleventh day: Patient without discomfort of any kind. Pulse, 72. Skin cool. Tongue moist. Sat up for half an hour.

Eleventh to fourteenth day: Progress as to be expected.

ARTICLE IV.

REMOVAL OF PAROTID GLAND.

REPORTED BY CLAUDE BROWNING, M. D.

(Hospital of Oral Surgery, Philadelphia, Clinic of Prof. Jas. E. Garretson, M. D.)

The patient, a professional gentleman residing in Colorado, came as a private patient to the hospital with a view to the extirpation of a parotid tumor, the bulk and relations of which were such as to render life no longer bearable under its presence. The origin of the growth is

referred to a sudden sharp crack occurring in the neighborhood of the ear, heard by the gentleman as some few years back he was sitting at the open window of a car while crossing the Rocky Mountains, which crack the operation showed to have as its meaning a fracture of the styloid process of the os temporis. Measurement of the morbid enlargement gave four and a half inches vertically, three transversely, and one and a half in thickness. Fixation amounted to almost entire immobility. Diagnosis: Fibro-enchondroma.

The operator, having the assistance of Professors Agnew and Brinton and of Dr. Hunt, of the Pennsylvania Hospital, commenced the ablation by a first incision extending from the temple to a position upon the neck overlying the space of selection for the ligation of the carotid externus. A second incision, extended transversely across the cheek, met the first adjacent to the anti-tragus of the ear. The incisions thus made affording two anterior and one great posterior flap, the tumor was uncovered, the cuts being made of a depth sufficient to expose the carotid, which vessel was lifted and tied. Attempt to dislodge the mass exhibited it as completely filling the zygomatic fossa, and at the same time inseparably connected with the periosteal structure of the maxillary ramus, both upon its external and deep faces, similar relations existing with the mastoid process of the os temporis; the styloid was found fractured.

The removal of the growth, which, after an hour's labor was effected by means of much dissection and careful manipulation (the latter particularly demanded on account of insinuation of prolongations of the tumor into the spleno-maxillary fossa), was secured in a manner that admitted of no doubt as to a radical extirpation. After securing the carotid artery not a single ligature was used, the facial having been tied at the time of uncovering.

At the time of operation Professor Garretson remarked that all tumors of this region, and the removal of them as well, involve markedly the lymphatic system, hence a change to be expected lies in the direction of lymphatic stasis. In the case of the present ablation the process of local healing progressed entirely satisfactorily, but after about a month an expression of coma began to show itself, which continued to increase until later the patient died in Chicago. Sectio cadaveris revealed the cause of death to lie in an abscess situated at the base of the brain.

Original Translations and Abstracts.

A THIRTY-SEVEN-POUND TUMOR OF THE LEFT SUPRASEUAL CAPSULE—EXTIRPATION—RECOVERY.—Dr. Bruntzel has added another to the small list of successful extirpations of the kidney. The patient, a woman aged 35, had noticed that a tumor had been slowly increasing in size from the time it first was manifest, in the year 1877. No pain accompanied its development until it began to press upon the adjoining nerves and viscera. Disturbances of nutrition, the pains in the extremities and the mechanical obstruction it offered to movements of the simplest kind induced the patient to submit to operation, in spite of Dr. Bruntzel's statements that death might occur during, and was liable to follow, the operation. Percussion revealed the outline of the tumor clearly; it reached from the xiphoid cartilage to the symphysis, along which line the incision was made. The tumor was seen to be retroperitoneal; but its origin could not be made out, so far did it extend in all directions. During the removal, when numerous large vessels had to be tied, the kidney was found deeply imbedded in the centre of the mass, and was removed with the growth.

The patient, all this time under the influence of combined morphia-chloral-chloroform narcosis, now showed alarming symptoms. Artificial respiration and hypodermics of ether were successfully resorted to, and after washing out the cavity, which was so large that at every respiration a part of the stomach was sucked down into it, the wound was closed, two drainage tubes being left in. All went well until on removing one of the sutures ten days after the operation, sudden collapse followed, and lasted three hours. This was caused by a small rupture of the intestine, for fecal matter exuded from the opening where the drainage tubes were placed. This was caused either from necrosis due to puncture or compression of a vessel by the suture, or from injury to the intestine in putting in the sutures. The fistula soon closed and the patient recovered.

The tumor was a fibroma, thirty-seven and one-half pounds in weight, made up of numerous lobulated masses varying in size from that of an orange to that of a man's head, and divided from one another by slight depressions. A yellow spot of commencing degeneration was found at the centre, and the vessels about it were the seat of thrombi. Imbed-

ded in the tumor was the kidney, whose *structure was wholly normal*.—*[Berliner Klinische Wochenschrift, Dec. 4, 1882.*

A RARE CASE OF SPASM OF THE VOICE.—Spasm of the glottis in its more unusual aspects recently received quite a number of additional cases. None of them, however, equal in interest that recorded by Strassmann occurring in the Medical Clinic of Jena.

A young girl, aged 16, who had not yet menstruated, of healthy parentage, and who had been, up to this time, in good health herself, noticed on the 21st of December that with every breath there was a voice—a sound—which she could not control or stop.

This “croak”—for it resembled the croak of a frog—varied in intensity at different periods of the day; it continued during her sleep, but otherwise was not influenced by exercise or any endeavors on her part to vary it. There was no pain, no dyspnoea, and “her own voice” could be used at will and independent of the other. She was taken to Prof. Nothnagel. Her condition then was as follows: a slim, rather undeveloped girl, healthy looking, but slightly strumous. The voice within could be heard by those around her; it was not increased by deep inspiration, nor by weeping or talking. The cervical muscles normal in action; the laryngeal box with every one of the “sounds” was drawn downwards; respiration, 20; pulse-rate, 64 and regular.

Bromide of potassa, the galvanic current, and the horse-shoe magnet were remedies that proved of no avail.

Then metallotherapy was tried. A piece of silver was placed, without any results, on either side of the larynx. A little plate of copper was then applied. This effected the cure.

There was a neurosis whose seat was in the inferior laryngeal nerve. That other pneumogastric branches were involved was evidenced by irregular, and at times, rapid heart action. There was spasm—cramp—of the adductors of the glottis, and this was, besides, an inspiratory spasm. Strassmann says further that it is a “matter of taste” whether an hysterical origin be ascribed or not.—*Ber. Klin. Woch.*, No. 46, 1882.

SNAKE BITE—RAPID CURE BY CARBOLIC ACID.—Dr. Sereins relates a case of snake bite treated successfully by hypodermic injections of carbolic acid. The patient, a charwoman, 40 years of age, was bitten by a venomous snake on the left foot just below the external malleolus. Half an hour afterward she experienced an intense smarting

at the point of the injury and a sensation of constriction in the abdomen and epigastric region. Soon she began to throw off quantities of glairy mucus and bile.

The vomiting was almost incessant, and each attack was preceded by a painful aura starting from the wound, passing up the limb, and radiating toward the stomach. A tourniquet was applied to the limb, and the wound covered with a compress dipped in a solution of ammonia. Dr. Sereins arrived two hours after the woman had been bitten, and found her vomiting and suffering from a sense of impending suffocation. The skin was cold and covered with perspiration, the pulse feeble and beating 110 to the minute; on the external surface of the foot, just below the malleolus, were two little red points, and above them a small blister caused by the ammonia.

The lower part of the leg was enormously swollen, the skin marbled, with here and there yellowish spots and points of ecchymosis, surrounded by small vesicles. The patient complained bitterly of cold. Four hypodermics of a solution of carbolic acid in glycerine (two in fifteen) were given, one in the neighborhood of the bite and three at the upper edge of the œdematous part of the leg. The wound was also bathed with the same solution. In one hour there was a very appreciable reduction of the swelling, the vomiting being less persistent and ceasing entirely in four hours. The next day the constricting ligature was removed from the leg. On the second day the patient had entirely recovered; there was but slight swelling of the leg, and the yellow spots and ecchymosis had disappeared. The case seems remarkable in the rapidity of the cure effected.

Few accidents of this kind are ever recovered from (if at all) short of a fortnight. Then, the woman was not seen until two hours had elapsed after the wound was inflicted. The nervous centres were profoundly affected, as evidenced by the symptoms. Thus the carbolic acid not only destroyed the venom at the point of introduction, but even neutralized its effects upon the general system.—*L'Union Medicale*.

REFILLING OF PRESCRIPTIONS.—In Wisconsin, any druggist, apothecary, or vendor of medicine is liable to a fine of ten dollars and costs for every time he is convicted of refilling a prescription marked "No Duplicate."

Selections.

INTRODUCTORY LECTURE TO THE COURSE OF THERAPEUTICS.

Delivered in the Hospital St. Antoine by Prof. Dujardin-Beaumetz, of Paris.

Gentlemen : I owe you an explanation of the words "Clinical Therapeutics" placed at the head of these lectures. What is meant by Clinical Therapeutics? What are the limits? Deriving the name as we do from two distinct departments of medical study, what part shall we assign to therapeutical, what part to clinical medicine? On all these points I will endeavor to be explicit.

Clinical Medicine and Clinical Therapeutics.—When you study therapeutics, so-called, you pass in review the different medicaments which constitute the *materia medica* ; you learn their natural history, their physiological properties, their dosage and their various applications in the treatment of diseases.

This method of study is altogether theoretical. It is like commencing clinical medicine by learning about diseases, their march and their symptoms in treatises on Pathology and Practice ; but in order that Therapeutics, like Pathology, may become practical, useful, productive, the theoretical notions which you have learned must be applied to the patient ; moreover, as Clinical Medicine is the study of the modifications which different organisms impose on the course of morbid affections, so clinical therapeutics will enable you to appreciate in the living being the constantly occurring deviations from the precise laws formulated by therapeutics properly so-called.

To examine and survey the effects of different remedial agents administered to the patient, and to study their indications, will constitute, for us, clinical therapeutics.

In pursuit of this knowledge you will learn not only how to handle medicines, but also how to associate them so as to constitute what has been described under the name of medication. No study more practical, none more necessary.

Utility of Therapeutics.—In this place to insist on the necessity of therapeutics would be absurd ; medicine without therapeutics does not exist. All that you learn about medicine properly so-called, and the sciences accessory to it, has but one end and aim—to relieve and cure the patient.

When you are in presence of a sick person, after having taxed all the knowledge you possess to enable you to arrive at an exact diagnosis, and after having carefully considered the prognosis, you are inevitably and fatally brought to face the question which your own conscience, your patient and those around him force upon you. What must be done? You will have to look to therapeutics for an answer, and the world will form their opinion of you much more from the skill with which you combat disease than from the knowledge, however pretentious, which will enable you to recognize and diagnosticate disease.

Far from our thought the intimation that one can be a good practitioner without a thorough understanding of clinical medicine and pathology; in order to institute a treatment and determine the indications, it is absolutely necessary to know (as far as possible) the symptoms and natural tendencies of the malady which is before you. In fact, everything in therapeutics will be hesitating, mismanaged, incoherent, unless you begin by establishing the treatment on a solid basis, which is an exact knowledge of the morbid affection.

Scepticism and Enthusiasm in Therapeutics.—When occupied with therapeutics there are two dangerous rocks to shun—scepticism on the one hand, exaggerated enthusiasm on the other. To believe too much and not to believe at all are two opposite terms, but they are not so far apart as one might suppose. The one engenders the other, and extreme credulity gives rise to incredulity.

Beware especially of scepticism. A physician who lacks faith in medicinal measures has no more reason for existence than a priest who does not believe the religion he teaches, or a soldier destitute of love of his country and his flag. It is repugnant to reason and to conscience that he can be a good physician who judges of no utility all the remedial agents that have the sanction of tradition and custom.

Illusions in Therapeutics.—But, on the other hand, it often happens that he who has the reputation of being sceptical at the hospital becomes an over-zealous prescriber when at the bedside of his private patient. Believe then in your art, but that this belief may be judicious, reasonable, let it not suffer you to be too easily carried away by what you may deem the results of your medication; in therapeutics illusions are indeed very frequent. This arises from numerous causes, especially from the propensity of the human mind to attribute all that eventuates favorably in the course of the disease to the medicine given,

when very often it is only the natural evolution of the disease which the physician has observed.

It is particularly in epidemic complaints that great prudence and extreme reserve should be exercised before drawing conclusions. The type of epidemics is variable, and, according as this is mild or severe, therapeutical results are different. This explains to you why it has happened that certain remedies exhibited with success in some epidemic and contagious diseases, in other seasons have failed to give as good results. This is an example of those therapeutic illusions which have incumbered the *materia medica* with so many drugs which have obtained a certain brief reputation in their day, soon to fall into forgetfulness and neglect until another experimenter, repeating the experiences of a bygone time, restores them to passing notoriety.

This celebrity and this decadence of remedial agents are unfortunately facts of too great frequency in therapeutics. So, after having pruned away all the useless and superfluous substances of the *materia medica*, if you retain only those which medical practice has consecrated by long usage, you will find that the really useful medicaments are much less numerous than one would suppose, and that your daily practice will include but a few drugs.

Is Medicine an Art or a Science?—For a long time the question has been discussed, “is medicine an art or a science?” It is both.

Medicine is a science by the many kinds of knowledge which it includes as a necessary part; it is art by its application to the patient, and above all by its therapeutics. It is in this art that all the talent of the physician finds its proper exercise; it is by the form given to his preparations, by a happy choice of remedial agents, by their favorable combination, that the physician is a veritable artist. And when Trousseau pronounced these words he was himself the living personification of the fact, for no one ever carried farther than he the art of therapeutics.

Empiricism.—Follow no exclusive method ; draw from all sources. Be not too solicitous for physiological explanations ; do not demand for each drug an absolute experimentation which may explain its therapeutical action. Because you know not the mode of action of quinine, do you any the less believe in its efficacy in intermittent fever? Because you are ignorant how mercury acts, does it cure syphilis any the less?

I am aware that by so speaking I lay myself open to the charge of

gross empiricism. It will be said, too, that I am diverting therapeutical practice from the new and scientific road which it ought to travel. But this road is scarcely marked out ; only here and there a few stakes have been set, and unhappily these stakes are not very firmly placed.

Experimental Therapeutics. — Experimental therapeutics, in fact, may be said to exist only in name. Being unable to induce in animals artificial diseases, we cannot study on them the therapeutical action of drugs. We have scarcely been able to arrive at a knowledge of their physiological action ; for we are too often obliged, in order to obtain appreciable effects, to produce grave disorders and to administer the drug in the state of poison rather than in the state of medicine. By this method, then, of studying the action of drugs, we have cultivated an experimental toxicology rather than experimental therapeutics. Do not think, however, that I would discourage these researches. You know, on the contrary, how much I prize them. You have often seen me in our laboratory study the effects of medicines on animals ; you have seen me examine attentively the symptoms produced. It is indeed an excellent study which has furnished valuable data, but do not forget that it is only a complementary study.

It enables us to give a tolerably plausible explanation of the action of the medicament, and especially to know the limits beyond which it is not safe to go, and at what moment the drug ceases to become medicinal and becomes a poison. But it is not physiological experimentation that decides the destination of the medicament or of medication ; it is the effect of the remedy on the sick man and on the march of the disease which determines its therapeutical value.

The history of therapeutics these last few years shows that it is by this mode of procedure that progress in this science has been made. Do you believe that it was as a sequence of experimentation on animals that chloral, bromide of potassium, alcohol, etc., were introduced into therapeutics ? No, the clinician first noted with care the favorable results obtained in the treatment of active affections, then the facts reported were confirmed by the experience of others, and the experimenter, applying the drug in his turn to animals, studied the intimate mechanism and physiological action.

It is, then, always to observation that you should have recourse ; it is to the attentive examination of the patient that you should always return. Careful observation will enable you to study the action of the

drug, to lessen or modify the dose according to the indications, and to decide the proper form for administration.

Complexity in Therapeutics.—Do not employ too many remedies at the same time ; do not in your busy endeavors to serve your patient inflict upon him medicines and medicinal measures widely differing in their action. Study with care the disease which is before you ; go back to the origin of the morbid affection ; formulate the leading indications resulting therefrom ; decide concerning the diatheses which have influenced the course of the malady, institute a plan of treatment and endeavor to carry it out with a very moderate exhibition of drugs.

Therapeutics of Symptoms.—During the years just passed, we have seen it gravely urged that we should treat diseases by meeting particular symptoms ; that is to say, by combating each of the morbid phenomena by a specific medication. This is, I believe (in very many cases at least), a pernicious course to pursue, and one for which there is little scientific justification. Instead of dispensing your medicines in this way, instead of introducing into the economy numerous substances differing in their nature, differing often in their action, adopt an opposite method—that is to say, endeavor to find the point of departure of all the manifold symptoms, and to this, as the real cause, direct your medication.

Constancy in Therapeutics.—Be not too changeable; do not allow yourself to drift about at the caprice of your patient, who would fain experience immediately the benefit of the medicine; learn to be patient and wait until the medicine has had time to produce all its effects. Husband well your therapeutical forces; do not expend all your efforts at once; follow the tactics of the army general, and to decide the victory keep always strong reserves.

Coolness and Presence of Mind in Therapeutics.—Unhappily the physician in certain cases called cases of urgency often yields to the importunities of the family, who are frightened at the progress of the disease, and administers with lavish hand medicines that are heterogeneous and even incompatible.

Accumulation of Doses.—In the midst of the general disorder be calm and cool; be not precipitate in the administration of remedies; act rapidly and with energy, but go right to the end you have in view, without stopping to meet secondary symptoms.

Do not forget, especially if you institute a course of treatment that

must be continued for some time, that a great many remedial substances, when given for a good while, either lose their effect or produce cumulative effects in the economy. You must in these cases know how to suspend and interrupt the administration of the drug at the proper time; you must know also how to vary its administration, in order that the patient may not be disgusted with the remedy from long taking it. Remember, also, that the effects of the same medicines differ according as they are taken in massive or fractional doses.

The Art of Prescribing.—This is not all; it is desirable that the physician should use the utmost care in prescribing his medicines. The hospital practice does not, unfortunately, favor this special study; we find ourselves in a particular situation which obliges us to formulate too rapidly and incompletely, so that after having followed for several years our hospital services the most of you are almost entirely ignorant of the art of prescribing.

This ignorance has more serious consequences than you think of, and if we see in our day pharmaceutical specialties having a constantly increasing importance, it is in some measure due to the fact that physicians do not acquire that expertness in the preparation of their medicines which they ought to possess, and prefer lazily to rely on the combinations of the manufacturing chemist, or even on the so-called “quack medicines.”

But if by pursuing this course the practitioner often promotes the fortune of the pharmacist, he despoils himself in the end, for the patient, beguiled by the advertisements which accompany his nostrum, is almost certain to apply in the future, not to his physician, but to the vender of the patent medicine.

Learn, then, skilfully to prescribe, and not only to write in an orderly and judicious manner the substances which compose your prescription, but also to render the combination as pleasant to the taste as possible. Repudiate, therefore, in a general way all the specialties which imitate the therapeutics of to-day. Exercise the greatest care in the directions which you give to the patient or his nurses; do not fear to enter into the minutest details; indicate how the external applications should be made, and the times for giving the internal remedy; regulate carefully the little incidents of the day, and be particular about the diet, for you must ever remember that pharmaceutical measures go but a little way in the cure of your patient, and that you can often accomplish more by hygiene than you can by medicine.

Hygiene in Therapeutics.—Hygiene is, in fact, called upon to play a preponderating part in the treatment of diseases, and especially of chronic affections. To establish with care and in a scientific manner the bases of dietetics, ought to be one of the most serious occupations of the practitioner, and you will see in the course of these lectures the prominence which I give to hygiene in the treatment of diseases.

Etiology in Therapeutics.—By the side of hygienic therapeutics it is also necessary to bring into light the importance of a study of the causes of the disease, for the old adage, *sublata causa tollitur effectus*, is always true. Therefore Prof. Bouchardat was right in insisting that etiology is as indispensable to therapeutics as is hygiene, or the administration of medicines.

Pardon me, gentlemen, for these remarks, but in undertaking the responsibilities of private practice you will soon learn how all these details contribute toward the reputation which the physician enjoys. The patient cannot, in fact, judge of your technical knowledge; he appreciates simply the care which you give him, the devotion and skill which you display in such cases; he forms his opinion of you and values you by the little details of our art. Do not think lightly then of these details, to which you will see me again and again return in the treatment of our patients.

PLEURISY IN CHILDREN.

Gentlemen: Our subject for to-day is pleuritis. This is not, as you are aware, a disease of early life exclusively; it has even been asserted to be extremely rare at this period. There is good reason to believe, however, that while the disease is rather frequent, its recognition is somewhat rare.

I wish mainly to set before you the peculiarities that characterize pleurisy in infancy and childhood, so that you may be left without excuse if you fail of that diagnostic precision in which so many before you have been found wanting.

In the young as in the mature, pleuritis is almost always unilateral, and that is a blessing, for thereby we are furnished with a standard of comparison.

It is practically important that you should know that it occurs under different conditions. It may be *primary*—standing apart from any other disease; or it may be *secondary*—that is, attendant on and sequent

to some other malady, as pneumonitis, scarlet fever, nephritis, rheumatism or pulmonary consumption.

As a primary affection its usual cause is taking cold. It may happen to the youngest infant, though it is mostly met with in children who are older and more liable to exposure. In grown people the initial symptom is a chill. Not so in infancy, and not generally so in childhood. Sometimes vomiting is the first thing noticed; sometimes a convulsion or a series of them. But usually the first symptom of prominence is pain—a stitchy, stinging pain. Though infants cannot tell you this, the fact of pain is often made evident by fits of crying and screaming and a disinclination to be moved from a chosen position. Older children will indicate the seat of pain. In most cases, perhaps, it is in one side near the nipple; but quite often it is not in the thorax at all, but in the upper part of the abdomen, and the child's constant wail may be that his "belly hurts." I would have you make a mental note of this, for not a few children have been treated for colic when the real trouble was pleuritic. I suppose the reason of this is to be found in the fact that the lower intercostal nerves are distributed to the integument of the abdomen. The pain of pleuritis in early life varies greatly as to intensity. Sometimes the little one appears to be in the extremest distress, and there may be such tenderness of the affected part that the least pressure causes flinching. In other cases the pain is moderate and not lasting. Though I cannot give you the reason, I may mention the fact that the pain may remain limited to one small spot, though all the pleura of that side may have become inflamed.

I may as well tell you here that you will sometimes fall in with cases of pleurisy that are latent as to pain and other prominent symptoms. A child that had not been known to be seriously ill is brought to you for an opinion as to the cause of its failing health. You examine it and find one side of the thorax full of fluid. Insidious pleurisy is rather frequent in early life, especially in connection with scarlet fever and some other diseases.

The next symptom that will in most cases engage your notice is the cough. A child in the first days of pleuritis handles its cough with the greatest caution. It is short, dry and frequent, and the pain that it causes and the efforts to suppress it are often depicted in the features. But the cough is as variable as the pain. In some cases it is well nigh constant; in a few so slight as scarcely to attract notice. But

please to notice that the cough *follows* the pain—the latter generally having a lead of half a day or more.

Another point is the fever. Pleuritis, like other affections ending in *itis*, is attended by a rise of temperature. I think it is seldom quite as high as in acute pneumonia. The difference in surface heat between these two divisions may be strikingly evident to the hand. In pneumonitis the integument is often “burning hot;” in pleurisy it feels but little warmer than nature. In pneumonitis also the face is flushed, often crimson; in pleuritis if there is a little flushing at first it soon subsides and leaves the countenance pale and often rather sallow. Notice also the decline of temperature in the two diseases. In acute pneumonia it is sudden; at the end of a week or thereabouts the crisis occurs and the temperature falls quickly—in one day—to the normal or even below it. But in pleuritis the decline is always gradual. Often two or three or more weeks pass before it drops to the standard of health. The pulse is, of course, quickened in its pace, and there are the usual attendants of the febrile state.

Occasionally, in the first days, when the fever is at the highest, there is severe headache and active delirium; and if there is also vomiting and constipation you may lean towards a diagnosis of cerebral inflammation. But consider and weigh all the symptoms and carefully examine the chest and you will seldom go wrong.

Another feature of this disease that claims your attention is the breathing. It is hurried, but less so as a rule than in pneumonia. If you observe it carefully you will be struck with its superficial character. The child prefers to breathe frequently rather than deeply, for it has learned that a full breath excites the cough and causes pain. There is seldom either much dyspnoea or lividity. If the child needs more air, it breathes oftener rather than deeper. Sometimes there is a little expansion of the nares and an expiratory moan, but these features are seldom as prominent as in pneumonitis.

Altogether the child will probably seem to be less ill than are children with acute inflammation of the substance of the lung, nor is there at the end of a few days that sharp turn for the better that characterizes the latter disease. The natural result of an inflammation of the pleura is, as you well know, an increase in its functional activity; hence an exudation of fibrinous lymph or of serum, or both. Layers of fibrin are deposited on the pleural surfaces while detached shreds and floculi of it float in the fluid that is accumulating within

the cavity. In most instances, this fluid is a clear serum ; but here is a point that I would emphasize : in children this fluid has a remarkable tendency to become purulent ; sometimes, indeed, it has this character from the very first. This is *empyæma*.

The amount of effusion is variable. There may be but two or three ounces, not enough to hamper the lung in its movements ; or there may be sufficient to fill the cavity full and over-full so that the lung, retiring before it, is crowded into a corner at the upper and inner part of the chest—an airless, bloodless, leathery lump.

I hardly need to tell you that as a result of excessive effusion, the diaphragm may be pressed downward, the heart crowded to one side, the intercostal spaces rounded outward and the side considerably increased in its measurement. The increase in size, however, may be difficult to estimate, because the other side may be enlarged as much from the increased volume of the sound lung that now has double work to do.

I have gone somewhat minutely into the general symptoms because the physical signs on which in the pleurisies of adults we can plant ourselves with so much assurance are often in children unreliable and misleading. Especially is this so at first. Auscultation is unsatisfactory, because the child breathes as superficially as possible and the friction sound is seldom caught in infants and young children.

After some days, when considerable effusion has occurred, a diagnosis is not difficult. The flat, toneless thud, and the sense of great resistance on percussion, are of themselves almost conclusive of a fluid accumulation. Above the level of the liquid the sound will be clear and tympanitic. In some instances the diagnosis may be happily confirmed by observing that the upper line of dullness varies with changes in the posture of the child. But often the fluid is confined by fibrinous partitions, or the pleural sac is full, and then this test is not available.

In the adult when the effusion is large, all respiratory sounds may be absent and the results of auscultation are only negative ; but in children there is seldom so much fluid between the lung and the chest-wall as to do away with bronchial breathing, and quite often the vesicular murmur may still be faintly heard. This will not be so, of course, when the accumulation is so great and the pressure so long continued as to wholly close the lung to the entrance of air. But in any event the contrast between the diminished air sounds of the crippled side, and the exaggerated respiration and hyper-resonance of the sound side will be

so pronounced that there should be no error of diagnosis. When there is much effusion it may be both seen and felt that the usual mobility of that side is lessened.

Some writers speak of a change of shape as a sign of large effusion, consisting in lateral flattening and anterior bulging.

You will not forget that in the young pleurisy and pneumonia are often concurrent—pleuro-pneumonia. In that case you will recognize the prominent symptoms of both diseases and you will give a guarded prognosis, for the condition is one of extreme peril.

In early, as in mature life, pleurisy may terminate in different ways. In many—in most cases—the fever ceases within a few days; the exudation is speedily absorbed; the lung regains its former volume, and within two or three or four weeks the child may be as well as ever. In some cases, and especially if the pleurisy is secondary to other disorders, the child may die at length from disease and exhaustion. In many instances, the fluid, if not purulent at first, soon becomes so. I think I have already stated that suppurative pleurisy is much more frequent in the young than in older people. Secondary pleuritis is very often of this character. Empyæma is always a serious disease. It is true that when the quantity of pus is small it may be disposed of through fatty degeneration and absorption, but not so, I think, if the cavity is full or nearly full of pus. It is retained; and before long there are symptoms of pyæmic infection, such as high fever, exhausting night sweats and rapid wasting. After some weeks or months, if the child lives so long, unless our art has provided an outlet for the pus, nature attempts its evacuation either through a spontaneous opening in the chest wall, or internally through the air tubes or esophagus, or possibly downward through the diaphragm. In children, evacuation through the outer wall seems to be nature's favorite method.

But even when the drain has been established the child does not always recover. The production of pus may keep pace with its discharge until the patient sinks from exhaustion or falls into a hasty consumption. If it lives and the discharge at length ceases, there is apt to be retraction of the side and spinal curvature resulting from atmospheric pressure. In children, however, much oftener than in adults, the crippled lung may by slow degrees become re-inflated and reach at length its former volume, and in this way a very considerable deformity may in time be overcome.

"Prompt and very efficient blood-letting is indispensable in the treatment of this form of pectoral inflammation. Blood should be freely drawn with the lancet until a decided impression is made on the pulse. The early application of leeches to the chest is also a highly important measure. As soon as the momentum of the circulation has been moderated a blister ought to be laid over the breast. The bowels must in the first place be freely evacuated by an efficient dose of calomel and rhubarb, and kept in a loose state throughout the course of the disease by small doses of calomel and ipecac, or suitable portions of epsom salts."

I have quoted these lines from a great authority in his day,* partly that you may see how tenderly the little ones of thirty or forty years ago were treated, but chiefly to caution you against such counsel. Do nothing of the kind. Do just the other way. Avoid reducing measures and seek to preserve the child's strength.

The truth is that most cases of primary pleurisy tend to speedy recovery without medical treatment. Yet we are not on that account to withhold our ministrations.

If the pain is severe, considerable relief may usually be obtained by hot poultices—linseed is as good as any—so covered as to retain their heat. More rapid and complete relief may be had by the hypodermic use of morphine—one-thirtieth of a grain for a child of one year.† When the pain is referred to the abdomen a broad bandage so applied as to restrain abdominal and diaphragmatic movement may give some relief.

To quiet the cough at night and secure rest Dover's or Tully's powder may be given in doses of from one to three grains, according to the age. At first, while the fever lasts, the diet should be light and simple; later it should be nutritive but plain. Constipation is to be obviated; beyond that I do not believe cathartics are of service.

Some cases require more decided treatment. In weakly children, especially if the pleurisy is secondary, absorption may be for a long time at a stand still. Your first duty in such cases is to determine whether the fluid is serous or purulent. This is easily done by passing the hypodermic needle through an intercostal space in the lower half of the chest. The back is preferable because the child is less ter-

* Eberle on Children. † Eustace Smith.

rified when not a witness of the procedure. If clear serum is withdrawn you are justified in resorting to medical means to hasten its absorption. Among these means diuretics have always been in favor. If unable to devise a better, you may use a formula something like this:

R	Potassi iodidi.....	3 ii
	Potassæ nitratis.....	3 i
	Infusi digitalis.....	3 ii
	Syrupi simplicis.....	3 iss
	Elix. simplicis.....	3 i
	Aquæ ad.....	3 iv.

Teaspoonful once in four hours for a child of three or four years old.

Tonics do well for these cases, and about the best of them is the old muriated tincture of iron. From five to ten drops with syrup and water will not be too much for a child from one to three years old.

We likewise have local treatment for promoting absorption. Inunctions with blue ointment have, I am glad to say, fallen into merited disuse. The compound iodine ointment is a good remedy. It may be applied over the effusion with suitable friction from one to three times daily. Eustace Smith prefers the liniment of iodine to any other form. He paints a spot the size of the palm of the hand twice daily until the skin becomes irritated, and then works a new field. I believe that small blisters removed from place to place—flying blisters as they are called—are about as efficient agents as we have for exciting the absorbents. But blisters, even small ones, are irritating and tantalizing to the young, and I seldom use them if I can serve my ends by other means. Seek in all ways to put your patient in good general condition. “Proper nutrition and good air,” says Vogel, “are the main essentials to rapid absorption.”

Some late authors recommend a “dry diet” to starve out the effusion. I doubt whether much is to be gained in this way, for the system will not long remain in good condition if deprived of a proper supply of fluid.

By perseverance in the use of the above means, with now and then, if the little one is not weak, a sharp cathartic or a sweat, most serous pleuritic effusions will, after a time, become wholly absorbed.

But if the quantity is excessive, if the mediastinum is crowded to one side and dyspnœa occur, the fluid should be promptly let out. This may be done by a small trocar and canula, or better, perhaps, by

the aspirator. It has often been noticed that the removal of a part of the fluid serves as a stimulus to absorption, so that the residue is taken care of without farther instrumental aid.

If, instead of abating at the usual time, the fever continues or increases; if there are profuse night sweats and a growing debility, and if percussion shows that the fluid is not lessening, it probably is, or is becoming, purulent. If this suspicion is confirmed by an explorative puncture, the sooner you tap the better. It is true that nature may establish a drain and make a tardy and (too often) an incomplete cure, for the proportion of empyæmas in children successfully treated by aspiration is much greater than in adults. If the pus re-accumulates after its withdrawal the operation may be again and again repeated.

It seems, sometimes, as if the whole pleura had become converted into a pus-forming membrane, so rapidly is it produced. For these cases I think the better way is to make a counter opening; to wash out the cavity daily with warm water *slightly* carbolized or iodinated, and to insert a drainage tube. In all cases of empyæma, bear in mind the danger of phthisis. Feed your little patient liberally with milk punch, eggs, meat broth and the best food he can digest, and resort early to such agents as cod-liver oil and quinia—*Wm. T. Plant, M. D., Prof. Dis. of Children in Syracuse University, in Obstetrical Gazette.*

A CLASS OF PULPLESS TEETH—THEIR TREATMENT.

I have prepared this paper without reference to the literature of the subject of treating pulpless teeth, it being rather a result of long experience with a certain substance with the rationale of its application to a certain class of teeth. I know that the substance is used, to some extent, by dentists to accomplish the result for which I use it, but I do not recollect of ever reading any scientific reason why it is used. About eight years ago, while in practice with my father in Troy, N. Y., I had my attention called to the permanganate of potassa by a friend, a druggist in the city. We made many experiments with it—not confining our attention to spittoons—to prove its antiseptic property, and we were surprised at the time by the fact that but a small amount of the crystal was necessary to decompose a comparatively large amount of putrefactive matter.

Since that time I have used it extensively in my practice in treating a certain class of pulpless teeth.

I will not say that the subject of treating this class of teeth is an uninteresting one to dentists, but my methods and reasons for them may be quite uninteresting, and I will use as few words as possible in so doing.

I believe that the use of the permanganate of potassa in all teeth where decomposition of the pulp has occurred is attended with greater certainty of result favorable to the pericementum and subjacent tissues than by the use of salicylic acid, carbolic acid and other preparations from phenol. Of the derivations of phenol it may be safely asserted that they prevent decomposition of normal albuminous matter by coagulation—deeply or specifically—but that they do not, cannot decompose decomposition products of albumen, their action being a coagulating one rather than a decomposing one. I refer to the contents of the walls of the pulp-cavity, and do not wish to be understood as applying my remarks to pericementum for this reason: upon the death of the pulp the albuminous matter in the dentinal canaliculi coagulates at first, and thus the structure is rendered opaque. This is the first change that occurs, which is followed by the decomposition of the coagulum. Now, if the pulp is removed before death, and the cavity immediately saturated with carbolic acid, a coagulum is formed that is not so easily decomposed; or, if the treatment is adopted after the removal of an arsenized pulp, the result may be as good, because arsenic does not coagulate albumen, if our esteemed friend, Prof. Mayr, is correct. (I would say in parenthesis that in view of the circulation that is maintained in the cementum and the periphery of dentine of “dead” teeth, and the fact of long-continued action of arsenic, unless the arsenized fluids can be coagulated, I think that something else than arsenic for destroying pulps should be used.)

Death of the pulp is followed by decomposition. Decomposition of the pulp from any physiological or pathological cause will produce the sulphides of albumen, sulphuretted hydrogen, etc.

After the pulp-chamber of the tooth has been freely opened, so that the canal or canals may be entered by a smooth broach, less than a grain of the potassa is placed in a half-ounce of cold water, or in about that proportion, about a drachm being prepared for a treatment. A little absorbent cotton is roped on the broach, saturated in the solution, and introduced but a short distance, and immediately removed. The

color is changed. The fluid as introduced is a beautiful purple; upon removal it is brown. In this way a number of twists of cotton are wet in the solution, each in turn forced further into the canal, until the bits of cotton upon removal are found to be but little changed in color from purple. Thus I have used as many as twenty little twists of cotton in a first treatment. By taking precaution to never make the solution too strong, I have obtained most satisfactory permanent results. I have frequently conversed with Prof. Mayr upon this subject, and have been enlightened upon it very much. I will briefly state that the permanganate of potassa is manganese peroxide, plus oxygen, plus potassium; that there is an excess of oxygen ready for combination; that this oxygen being brought into a cavity containing sulphides of albumen or sulphuretted hydrogen, these are decomposed and water is formed, etc., and the permanganic acid is thus reduced to the peroxide of manganese, or oxide of manganese, according to circumstances, both of which are brown in color. The use of this chemical in treating a certain class of pulpless teeth insures the decomposition of those products that are the feeders of pyogenic membrane, and the sense of sight being quite sufficient to make apparent the accomplishment of this. We hear much talk about the ease and certainty with which certain bicuspid and molar buccal roots are opened, cleansed and filled with gold, etc. A careful study of many such roots by transverse sections under the microscope would show how utterly impossible this is in a great majority of cases, and how impossible it is to conjecture about the size and character of canal by outside formation, and we don't even have this to guide us except in cases of replantation.

I speak of this to show how impracticable much of this talk is about mechanical dexterity in treating and filling pulp canals. It is misleading to those who do not know much of tooth anatomy. In many cases it is not possible to reach the apices of roots, and the closing up of that portion of the root has to be done as near the apex as possible. Now if the canals in many bicuspid are plural, elliptical in transverse shape, and in buccal roots of superior molars the same, how are we to be certain of a good result in any case except where we use an agent that shall form new compounds and leave a veritable and comparatively insoluble new product in place of the old decomposing one—an agent that can be flooded over all surfaces? This agent does stain dentine, but so slightly if the proportions of crystal to water are right for each case that the surface of the tooth does not reveal it. But is

not the oxide or peroxide of manganese preferable as a deposit in the open ends of the dentinal canaliculi than some of the products of decomposed albumen? The proper treatment of this class of pulpless teeth is of as much importance as the after sealing of the ends of the canal; both operations being thorough, the material with which the root is filled is of very little importance.—*A. M. Ross in New England Journal of Dentistry.*

TYPHOID FEVER AND SALICYLIC ACID.

In presenting to the Academy of Medicine a work of Dr. Hallspeare on the treatment of typhoid fever by the association of calomel, salicylate of soda, and sulphate of quinine, M. Vulpian asked if against this terrible scourge it would not be possible to employ an antiseptic, slightly soluble, susceptible of arriving, without alteration, in the intestine, and there neutralizing the typhoid virus?

These first trials have been made with iodoform, in which there is no antiseptic property, because, when it is added to a putrid liquid, it neither kills the microbes nor destroys its fetidness.

The salicylate of bismuth, a substance slightly soluble, has not given very satisfactory results. It has not checked the disease, in spite of its prompt antiseptic action, and in doses of eight or ten grammes per day it has only produced a slight lessening of the temperature, with a notable disinfection of the stools. The disease has constantly followed its fatal course, while with a majority of the fever patients have come on the scene symptoms of excessive dyspnoea and nasal or intestinal hemorrhage.

The phenate of soda, given nine grammes per day, although well endured, has led to no sensible modification of the local or general condition.

Boracic acid, given progressively twelve grammes in twenty-four hours, and perfectly acceptable to the patients, by dissolving it in a quart of lemonade, has exerted no salutary influence.

In presence of these results, M. Vulpian seeks a new method.

Leaving aside the neutralization of the poison in its place, wherever that may be, he recalls the fact that typhoid fever, the same as the small-pox, the measles, the scarlet fever, consists in reality of an intoxication caused by the virus absorbed, and which, on its first attack, he seeks to combat in the blood itself and in its organic elements.

The medicine ought to reach not only the microbes, but the nervous centres, which impel the general circulation.

To effect this, his choice is salicylic acid, to which numerous German, Italian and American works have for a long time accorded an action certain and preponderate.

The dose of salicylic acid, given in unleavened bread, is about half a gramme every half hour or hour, but it has been increased successfully to six, ten and twelve grammes.* It is the medium dose of six to seven grammes per day which should form the base of the new medication.

From a careful study of various cases at the Hotel-Dieu, it is found that but little inconvenience is experienced in administering salicylic acid. It has produced in some young persons a little salicylism cerebral, but the delirium did not resemble altogether that of typhoid, and, moreover, it ceased when the medicine was stopped. Symptoms of albuminuria sometimes appeared, but it was impossible to say whether they were caused by the fever or the remedy.

On the other side, the beneficial effects of salicylic acid have always been very striking:

First. The regular and permanent lowering of the temperature from 40.5 degrees to 39 degrees, 38.5 degrees Cent., at the end of twenty-four hours.

Second. Amelioration of the general condition, evident to the physician, appreciable by the acquaintances of the patient, who himself was conscious of it.

Third. Successive oscillations of the thermometer, in direct accord with the administration of salicylic acid, and with its suspension or suppression.

The action of this medicine is, then, logical, though it may not be all-powerful and veritably curative.

Salicylic acid, given in sufficient doses, is, up to this time, one of the most powerful agents in moderating typhoid fever.

This point established, M. Vulpian demanded "if salicylic acid could not be employed as a prophylactic and preventive agent in epidemics of typhoid fever, and if taking daily a moderate dose of this medicine would not have the effect of annihilating the action of the typhoid poison?"—*By M. Vulpian, Professor at the Academy of Medicine, Paris. Translated for Hall's Journal of Health.*

*One gramme is equal to twenty-three grains.

BACTERIA.

Time will probably show that many of the pretentious statements which have been made concerning the fungous germ hypothesis of contagious diseases are groundless.

There is, probably, not a part of the body of any one of us a quarter of an inch in diameter where bacteria germs are not present. Certainly every time we eat, myriads are carried into our alimentary canal ; and every time we breathe, except in the very purest atmosphere, multitudes pass into the air-passages. So small are these bacterial germs that they would pass without the slightest difficulty through basement membrane and through the interstices of any of the tissues of the organism ; and yet the public is taught that there is some intimate connection between bacteria and dust and morbid phenomena. Erroneous notions are spread far and wide by sensation lectures, under such a title as "Dust and Disease." The dust which causes disease is of a most exceptional kind. It has been said that the air of the Swiss mountains is devoid of bacteria. But is the health and vigor of the inhabitants of the Alps to be compared with that of the workers on the Paddington Dust Heaps? As a fact, ordinary bacteria are harmless enough ; they exist in us without disturbing us in any way, but they only grow and multiply in great numbers when circumstances become favorable. I can give you positive proof that bacteria germs exist not only upon the surface of the skin and mucous membranes, but in the internal organs, in the interstices of healthy tissues and in the blood itself. Some years ago I examined the layers of a fibrinous clot which had been slowly formed from the blood in the interior of a large aneurism of the aorta of a man who died of the disease. The body was examined six or eight hours after death. The aneurism had existed for many years ; and probably some of the layers of fibrin which had been deposited were almost as old as the aneurism itself. Now, I found that in all parts of the firm, laminated, leather-like material, which served to greatly increase the wall of the aneurismal sac, there were indications of disintegrating changes having taken place. Upon carefully examining minute pieces of the fibrin under high powers, multitudes of bacteria and their germs were discovered without difficulty. But the older layers in the outer part were here and there softened, and portions of the fibrinous matter seemed eroded, many small masses of soft and broken-down material

being present. All these teemed with bacteria, moving, growing and multiplying.

Now, these bacteria, like the fibrin in which they were growing and multiplying, were close to the blood, and within the vascular system; internal to the various tissues constituting the wall of the vessel, which was dilated to form the aneurismal sac. The bacteria must have been growing and multiplying in the lifetime of the patient, and probably for many months before his death occurred. They could not have got into the position in which they were discovered from the outside, for it is hardly conceivable that such an organism as a bacterium could have found out, while outside the body, that within the vascular system there was material suitable for its growth and multiplication. Neither is it possible that the bacteria could have made their way from without to the situation in which they were found, nor could they have effected, in the course of a few hours, the extensive erosions and softening discovered. Such theories could not be sustained with any show of reason. The only conclusion, therefore, which is in accordance with the facts in the case and with common sense, is that which I have before adverted to, viz., that bacteria germs exist at all times in all parts of the body, even in the blood itself, during the healthy state.

I conclude that as long as the normal state of things exists the living bacteria germs in all parts of the organism do not grow and multiply, but when any change occurs of the character of that which results in chemical decomposition, these bacteria germs multiply. This multiplication proceeds, although we are alive, just as it takes place in dead animal and vegetable matter. And it will occur in every part of every one of us a very few hours after death.

So you see that if bacteria germs constitute the actual, material, living particles by which contagious disease is propagated, they must be peculiar bacteria, totally different from the ordinary bacteria germs which exist and have existed everywhere. The ordinary bacteria may certainly grow and multiply enormously on the mucous membranes of the body, in follicles of the mucous surfaces and in viscera—intestinal canal, bladder, and passages therefrom, nay, even among the elements of healthy growing tissue, without causing any disease at all.

Bacteria germs, low fungi and algæ exist in connection with the tissues and fluids of every human organism, and, as you may convince yourselves at any time, millions of these are unquestionably present

during every moment of existence in health on the dorsum of the tongue. Multitudes, as I have said, pass down the alimentary canal every time we swallow food or fluid. Such ordinary bacteria and their germs do us no harm whatever. But please do not infer from what I have said that putrid fluids loaded with bacteria are innocuous or to be recommended. Organic matter in a state of putrefactive decomposition, when introduced into the alimentary canal, gives rise to pathological phenomena irrespective of the bacteria it may contain.—*L. S. Beale, M. B., F. R. S., in Slight Ailments.*

HOW CONSUMPTION MAY BE PREVENTED.

Professor Tyndall sends to the *London Times* a letter giving the summary of a lecture recently delivered in Berlin by Dr. Koch showing the results of his researches to prove that tubercular consumption is caused by a parasite. In giving an account of Koch's experiments, he says:

“Of six guinea pigs, all in good health, four were inoculated with bacilli derived originally from a human lung, which in fifty-four days had produced five successive generations. Two of the six animals were not infected. In every one of the infected cases the guinea pig sickened and lost flesh. After thirty-two days one of them died, and after thirty-five days the remaining five were killed and examined. In the guinea pig that died, and in the three remaining infected ones, strongly pronounced tubercular disease had set in. Spleen, liver and lungs were found filled with tubercles, while in the two uninfected animals no trace of the disease was observed. In a second experiment, six out of eight guinea pigs were inoculated with cultivated bacilli, derived originally from the tuberculous lung of a monkey, bred and rebred for ninety-five days, until eight generations had been produced. Every one of these animals was attacked, while the two uninfected guinea pigs remained perfectly healthy. Similar experiments were made with cats, rabbits, mice and other animals, and without exception it was found that the injection of the parasite into the animal system was followed by decided and, in most cases, virulent tubercular disease.

“In the cases thus far mentioned inoculation had been effected in the abdomen. The place of inoculation was afterward changed to the

aqueous humor of the eye. Three rabbits received each a speck of bacillus culture, derived originally from a human lung affected with pneumonia. Eighty-nine days had been devoted to the culture of the organism. The infected rabbits rapidly lost flesh, and after twenty-five days were killed and examined. The lungs of every one of them were found charged with tubercles. Of three other rabbits, one received an injection of pure blood-serum in the aqueous humor of the eye, while the other two were infected in a similar way with the same serum containing bacilli derived originally from a diseased lung and subjected to ninety-one days' cultivation. After twenty-eight days the rabbits were killed. The one which had received an injection of pure serum was found perfectly healthy, while the lungs of the two others were found overspread with tubercles.

"Other experiments are recorded in this admirable essay, from which the weightiest practical conclusions may be drawn. Koch determines the limits of temperature between which the tubercle-bacillus can develop and multiply. The minimum temperature he finds to be eighty-six degrees Fahrenheit, and the maximum one hundred and eighty-four degrees. He concludes that, unlike bacillus anthracis of splenic fever, which can flourish freely outside the animal body, in the temperate zone animal warmth is necessary for the propagation of the newly discovered organism. In a vast number of cases Koch has examined the matter expectorated from the lungs of persons affected with phthisis and found in it swarms of bacilli, while in matter expectorated from the lungs of persons not thus afflicted he has never found the organism. The expectorated matter in the former case was highly infective, nor did drying destroy its virulence. Guinea pigs infected with expectorated matter which had been kept dry for two, four and eight weeks respectively, were smitten with tubercular disease quite as virulent as that produced by fresh expectoration. Koch points to the grave danger of inhaling air in which particles of the dried sputa of consumptive patients mingles with dust of other kinds."

The London *Medical News* says of the possible results of this discovery:

"If Pasteur's culture experiments have led to the discovery of a method by which the poison of splenic fever is rendered harmless, and the disease prevented by the timely inoculation of the modified virus, may we not hope that the time is not distant when the ravages of consumption will be prevented by the inoculation of a modified

bacillus? The medical profession of the whole civilized world will now await with the keenest interest the developments which may be expected from further study of the bacillus tuberculosis."

FAITH AS AN ELEMENT OF SUCCESS IN MEDICINE.

The effect of the mind on the body is now recognized by all writers on therapeutics, and there can be no doubt that the patient's mind is often affected by what he sees his physician's to be. If the doctor evidently has thorough faith in the treatment he is pursuing, the patient is apt to be inspired with sympathetic confidence, and the treatment is then more likely to be successful. On the other hand, an evident lack of confidence on the part of the practitioner may cause a distrust in the sick man's mind which will perhaps interfere with the desired result. Dr. Fothergill, referring to this subject, says:

If the medical man speaks to the patient with doubtful accents and hesitating utterances, he does not inspire confidence; he really sows distrust. This is the explanation of the successful treatment of a case by one man where another has failed, the remedial measures being much the same. The one carries the patient with him to the restoration of health; the other intensifies a morbid state, and tends to make it permanent.

This is a matter too little thought about. Just as a weak-willed medical man fails to do certain patients good, and lack of decision of character unfits a medical man for dealing with emergencies where the judgment must be prompt and the action energetic, so the therapeutic nihilist, who doubts the efficacy of drugs and leaves the patient to nature, disheartens many patients, and leaves them chronic valetudinarians; while in the hands of an enthusiast the cases would soon move onward to a satisfactory termination. There are some men who are "doubting Thomases;" there are others who decry what they do not understand, and deprecate remedies with whose potency they are unacquainted, who do infinite, immeasurable harm to their patients. An eclipse of faith in medicines has now existed some time; but the darkness is beginning to move away, and a return of faith, stronger, firmer, more capable of giving a *raison d'être* for its existence than in the past, is dawning—the daybreak of happier times for those who are stricken down with illness, or crippled in their working power by incapacity in their digestive viscera. This therapeutic nihilism is a passing wave of

opinion, a temporary mental state, the end of which is at hand; and the sooner it is over the better for all. The patient's prospects will be all the brighter; the medical man all the happier for feeling that the patient has got some "value received" in return for his outlay. A healthier condition of thought on matters medical will generally obtain; for quacks, charlatans and irregular practitioners of all kinds are to a great extent fostered by the recent want of faith in the medical profession. When a man is sick, what he wishes is to get well; the means to him is a matter of comparative indifference.—*Journal of Chemistry*.

THE ANTISEPTIC TREATMENT OF TYPHOID FEVER.

At a meeting of the Societe Medicale des Hopitaux, June 9, M. Ferrand presented the candidate's thesis of Prof. Desplat of Lille, upon the comparative action of carbolic acid and salicylate of soda. The views presented were, that the above drugs were excellent antipyretic and antialgesic agents—sure, rapid and permanent in their action, but, at the same time, easily eliminated, and, therefore, but slightly dangerous. Except in acute rheumatism, M. Desplat did not find any marked difference in their action. The discussion which ensued turned upon the use of carbolic acid in typhoid fever. Thirteen members took part and related their experience. Three or four did not commit themselves; the remainder agreed in saying that the drug in question, used as recommended, had a dangerous tendency to depress the system and to produce pulmonary congestion, exhausting sweats and albuminuria or polyuria. It was unanimously voted that the use of carbolic acid in typhoid fever, when given as recommended (in half gramme or gramme doses by enema twice a day), was dangerous and without effect upon the course of the fever.

Dr. Ramonet, Physician-in-Chief at the Military Hospital of Boghar, in Algeria, has contributed an article upon the use of carbolic acid in typhoid fever, expressing directly contrary views to the above. He is a follower of Desplat, except that he uses smaller doses, generally not more than two grammes per diem, by injection. The effect, he says, is to lower the temperature nearly four degrees F., and to produce a most favorable change in the progress and symptoms. He has treated forty-one cases, with a mortality of only two, or four per cent. The average mortality from this disease in the army is twenty-one per cent.

On August 22, at the Academy of Medicine, M. Vulpian read a paper upon the use of salicylic acid in typhoid fever. M. Vulpian based his therapeutics upon the theory that there is a bacillus of enteric fever in the intestine, and that this bacillus ought to be ferreted out and killed with an antizymotic. Having tried iodoform, boric acid, phenate of soda, and salicylate of bismuth with no effect, he finally settled upon salicylic acid. This in daily doses of two or three grammes was ineffective, but in doses of six or seven grammes daily (gr. xl. to gr. l. every two hours!) most satisfactory results were obtained in a lowering of the fever and a general amelioration of the symptoms. M. Vulpian concluded that this drug, without being curative, had an undoubted modifying influence upon typhoid fever. He thought also that salicylic acid taken by the mouth might act as a prophylactic. The discussion which followed brought out very little. It was only evident that M. Vulpian's views were theoretical, and that the clinical tests of his reputed remedy were not at all conclusive. Salicylic acid has been tried in Germany and America with no very good results, as yet reported.—*Western Medical Reporter*.

HEADACHE.—Dr. Haley says (*Australian Medical Journal*, of August 15, 1881), that as a rule a dull, heavy headache, situated over the brows and accompanied by languor, chilliness and a feeling of general discomfort, with distaste for food, which sometimes approaches to nausea, can be completely removed, in about ten minutes, by a two-grain dose of iodide of potassium dissolved in half a wine-glassful of water, this being sipped, so that the whole quantity may be consumed in about ten minutes.—*Glasgow Medical Journal*.

SUBSIDY TO PASTEUR.—The French Minister of Agriculture has lately placed at the disposal of M. Pasteur a new sum of 50,000 fr. (\$10,000) in order to continue his valuable investigations upon the contagious diseases of animals. The government had already granted to the illustrious savant, for the same object, 50,000 fr. in 1880 and 40,000 in 1881. The minister consulted a special committee, who, in view of the brilliant success obtained by Pasteur in his previous investigations, unanimously recommended a renewal of the grant.—*Les Mondes*.

Editorial.

SALUTATIONAL.—However agreeable, it is far from an easy matter to greet those who are unknown to one personally, even when it is felt that those we would address are friends. Perhaps it would be demanded of us, and with reason, to “state our intentions.”

Promises are things to be chary of—deeds suit most of us far better.

We hope to present to our readers each month a succinct account of whatever advances may have been made in medicine and the allied branches to which the INDEPENDENT PRACTITIONER is devoted. To this end translations of events chronicled by the French and German medical journals will be made directly the articles are published in those countries. Our first aim, however, will be to place before the profession the practical results of Medicine, Surgery, Obstetrics, Pathology, Dentistry, and Popular Science won for it on this side of the Atlantic by those men who have a right to be heard—nay, whose duty it is to speak concerning the branches wherein they so markedly excel.

The title of the journal affords a fair criterion for our guidance—*Independent* meaning that unprejudiced views shall be taken, and *Practitioner* warning us that though theory and discussion should form a part, they still fall far short of the importance of what is practical in the domain of medicine. It is to the practitioner that we devote the journal, but in so doing clearness will not be sacrificed to mere brevity, nor reason to mere dogmatic statement.

LEIGH H. HUNT.

NEW YORK, December 25, 1882.

INTRODUCTORY.—It is with unfeigned reluctance, and only after a considerable period of hesitation, that the undersigned assumes editorial charge of the Dental Department of the INDEPENDENT PRACTITIONER. A busy man, already sunk to his neck by the weight of personal responsibilities and professional cares, it seems mere presumption in him to assume to lead when he should only follow. Yet ever since his connection with a profession to which he has devoted his life he has been a contributor to its literature, and it is perhaps as well that he should finally try the experiment of standing alone, instead of always remaining in editorial leading-strings. He therefore undertakes the labor,

determined to devote to it all the energy of which he is capable. A place in the literature of an honorable profession is an enviable position, but he is well aware that it is not to be won at a single stride.

It is but reasonable that the readers of the INDEPENDENT PRACTITIONER should be taken into editorial confidence and given an inkling of what our hopes and aspirations are. The journal has now been established sufficiently long to give promise of a continued existence, and it should be understood that it has a definite aim. Unconnected as it is with the commercial element of the profession, it must stand upon its merits alone. It has no dental depot, no great manufacturing interests, no advertising demands to sustain it. It must rely upon its entire freedom from all such alliances, and as an independent journal appeal to the profession for support.

The Dental Department of the INDEPENDENT PRACTITIONER will be kept abreast the advance of thought. At the present time the tendency in investigation is largely toward the etiology of dental diseases, and in this field we hope it will do some effective work. A spirit of questioning is abroad in the land, and dentists are inquiring into the verity of traditions in which they have been long disciplined. Practitioners are audaciously catechising their quondam preceptors, and making deep study to find upon what foundation old-established theories rest. It is a disputatious and a sceptical generation. Still, endeavoring to discriminate between zeal and zealot, between honest investigation and wanton iconoclasm, the INDEPENDENT PRACTITIONER will do all in its power to aid original investigation, and it invites free expression of opinion from its correspondents upon all that is new in dentistry.

There is a large class of diseases whose pathology and treatment lie upon the border land between general medicine and dentistry, but the results of which may extend into and involve tissues and organs that are beyond any debatable ground in the undisputed practice of either. It is of that class of disorders that this journal will be specially mindful. Appealing as it does to both a medical and a dental constituency, it should be especially the organ of such as practice dental *medicine*, and its Dental Department will therefore pay particular attention to the *materia medica* and the therapeutics of the profession. These are subjects which have been too much neglected, and as a consequence our pharmacopœia is far too limited. Too large a proportion of dentists are quite content with half a dozen, or even less, of topical remedies. They do not subscribe for any medical journal, and their opportuni-

ties for extending their knowledge in this department are insufficient. To those dentists, therefore, who desire to keep fully posted in the medical department of their profession, and to those medical men who have an interest in the dental department of medicine, the INDEPENDENT PRACTITIONER will be a welcome visitor.

Finally, as the undersigned has, so far as ability went, ever been a liberal contributor to the literature of his profession, he with the greatest confidence appeals to his brother practitioners for sympathy and assistance in the work which he has attempted. He has visited the offices of a great many dentists, but he never yet examined one where there was not the evidence of some bit of special knowledge, some wisdom, the fruit of a particular experience, which the profession at large would be the better for, and they themselves, were it written out, none the poorer. If dentistry is to remain a profession, or a branch of a profession, it must have its literature, which can only be made perfect through each member furnishing material to the extent of his ability. Communications are therefore invited from every earnest man who really has anything to say.

W. C. BARRETT.

BUFFALO, N. Y., December 15, 1882.

HOSPITAL SATURDAY AND SUNDAY.—It is rare that an imported custom, and that, too, an English one, should take such sudden and firm root in America as Hospital Saturday and Sunday in New-York. The setting apart of these last days in the year as days when collections in most of our churches and synagogues are made for the support of hospitals is a most praiseworthy act. It is impossible to give in detail the magnitude of the work performed by these worthy institutions; enough to state that during last year 6,945 free patients received 261,705 days of hospital care gratuitously, at a cost of \$330,517.55, in the several institutions forming the Hospital Saturday and Sunday Association. Of this large sum only \$106,449.81 was received as income from their invested funds, while for the balance they are dependent upon the yearly gifts of the benevolent. In London, the contributions this year were upwards of a quarter of a million dollars. In our city it is noticeable how much greater is the proportion of donors among the poor than among the wealthy. The fact that the former may, and the latter probably never will, need the assistance of charity for restoration of health, may have something to do with this; but we should be sorry to ascribe any but the most

generous and unselfish motives to this large class of citizens in our city. The rich do not know how much is done in hospitals; and hence it is a physician's duty to induce, as far as possible, the wealthy among his patients to give to a charitable fund. There is no medical man who harbors for a moment any but feelings of admiration for the hospitals and their work. In no wise do they detract from him, either pecuniarily or in reputation; indeed, it is common for physicians themselves to send to these institutions those who for various reasons they cannot treat. Thus, a foul-smelling, close and dirty room, half warmed and filled with children, is but a sorry place for a weak woman to undergo an operation and in which to recover health and strength. It is the hospital where the physician can now send his patient, for philanthropical and interested as he may be, he could not personally shelter and treat one-hundredth part of the cases similar to this one that he meets with in his annual practice.

BALTIMORE INFECTIOUS DISEASES ORDINANCE.—This "ordinance to protect the public health" is one that well may serve as a model to Baltimore's sister cities. Certainly no subject is of greater interest to all classes of the people than their own health and how to preserve it from the attacks of dreaded "fevers." Should the ordinance, which contains twenty sections and a large amount of matter, be carried out even in part, the spread of diphtheria, small-pox, cholera, yellow fever and scarlet fever will be prevented, or assuredly limited to very narrow regions, if strict quarantine can check epidemics. But physicians know that to "fence in" a man sick with small-pox or cholera at a season of the year when few or no cases prevail is a very different thing from checking an epidemic by putting sentinels about houses whose inmates have succumbed to atmospheric or tellurial influences, impalpable poisons whose nature, even with the present great advance of pathology, is yet conjectural. We are inclined to regard checking of epidemics, especially those that prevail in the region of our country where this ordinance is issued, as a matter wherein the temperature and atmosphere play a most important part; why else do we pray for frost when the deadly yellow fever is prevailing? True, one disease, namely, variola, has a means of prophylaxis that makes strict police surveillance of great avail, and the ordinance of the Baltimoreans covers all possible emergencies. Yet the fine for refusing to be vaccinated is not to be more than ten dollars. Why, after all the details of

guarding against epidemics, the refusal to yield in what nearly every intelligent physician believes a necessity is to be visited by a very mild punishment, is a matter that we cannot clearly understand, unless it be that the municipal government believes all the citizens obedient and intelligent enough to follow physicians' teachings, which we trust is the case.

THE RECENT TYPHOID EPIDEMIC IN PARIS.—Every visitation of typhoid fever in the form of an epidemic is marked by its own peculiar characteristics. While the disease runs its cyclical course with a regular appearance of the eruption, a typical range of temperature and characteristic diarrhoeal discharges, the differences between one epidemic and another will be found in the complications. The peculiarity of the epidemic which has just come to an end in Paris did not consist in a very low mortality rate, although the disease produced no such ravages as former visitations.

The complications that were most marked were thrush, bed-sores and febrile recrudescence during convalescence. If the question were asked: had therapeutics a marked influence in the production of such favorable results in this dreaded epidemic, the answer would be decidedly and unreservedly in the negative. The number of deaths, Bourneville, the editor of the *Progres Medical*, states has doubled since 1871. Therefore if therapeutics has made advances, death has made still greater.

The Parisian physicians are not as enthusiastic over quinine, boric and phenic acids and salicylate of soda as they were a few months ago.

In fact, they question their efficiency. The results of their treatment, which they call "armed expectation"—another term for the "expectant plan"—are shown, they affirm, in the few complications of the fever. It is well known that the prognostic data in typhoid depend in great measure upon the presence or absence of complications. The fever runs a course that cannot be shortened; you may guide it, but like a runaway horse it must stop of itself. Hence to sit by and carefully watch, to be on the lookout for complications, is the chief element in the treatment practiced by the French during the last few weeks.

The theory that typhoid fever is a "vaccinnate" malady seems to have received new impetus from certain developments in the epidemic of which we are speaking. As additional proof of its being vaccinnate they

adduce the fact of its rarely attacking an individual the second time. On this side of the water not much stress is laid upon this, which is *not*, besides, a phenomenal occurrence, as a glance at any of the numerous medical text-books will show.

With characteristic rapidity the French *savants* seem to have deduced a number of theories regarding, and to have advocated distinct changes in the treatment of, typhoid fever, a disease peculiarly and primarily associated with pathology in France.

CARBOLIC ACID.—There is no therapeutical agent so extensively used among dentists as carbolic acid, and in by far the greater proportion of cases it is undoubtedly misapplied. It makes up the entire pharmacopœia of many practitioners. It is applied in septic and aseptic conditions, to hyperæmic and anæmic tissue. It is thrust into the nerve canals of offensive, devitalized teeth, and it is freely applied to exposed and living pulps. It is pumped into alveolar abscesses, and it is daubed upon hypertrophies. Hard tissues and soft tissues, tooth, bone, cartilage, muscle and mucous-membrane, all receive the same impartial treatment. In fact many supposed intelligent dentists make of it a universal specific, and trust to it to cure every oral disease that they meet with in practice.

Dentists, no more than any other class of practitioners, have the right to prescribe blindly. Unless they know the nature and office of a drug, it is trifling with life and health for any one to use it, and the application of irritants to inflamed and angry tissue indicates recklessness of results as well as ignorance of methods. Carbolic acid is a local irritant, and when applied to soft tissues forms a white eschar, which is only removed by the usual process of sloughing. When, therefore, this delicate tooth-pulp in cases of simple exposure is seared with it, and a cap of any material is placed over it, there is in contact with the living tissue a scab of disintegrated material which the tooth has no means of eliminating. The very process of thus cauterizing a part of the tooth-pulp irritates the remainder and induces an angry condition, which the judicious operator would avoid.

The chief virtue in carbolic acid is its destructive influence upon the lower forms of vegetable and animal life. Through this property it arrests fermentation and acts as a powerful antiseptic, and this is its principal recommendation for dentists. If forced into a septic nerve-canal, it renders it aseptic; but, at the same time, if it reach, either

by penetration or absorption, to the tissues beyond the apical foramen, great pain and inevitable inflammation are the consequence. There are other agents which bring about the desired results without these evil complications. We have frequently heard dentists complain that upon opening the pulp-chamber of a dead tooth which was slightly offensive but had hitherto been painless, after a bit of cotton lint dipped in carbolic acid or creosote had been forced into it, the most intense pericementitis has ensued, with pain so severe that the tooth was, perhaps, sacrificed for the comfort of the patient. What, then, was asked, was the cause of all this trouble? The answer must be plain to any reflecting practitioner. The remedy itself produced it. Why was an agent so drastic and irritating in its nature placed in contact with tissues already urged almost to the point of an outbreak? It was a misapplication of remedies.

Again, it is frequently pumped into a blind abscess, and the only means of exit for the sanious products is tightly plugged up with a pledget of cotton. What wonder that the effete matter (the albuminous portions of which have united with the agent, and being thus dammed up in a disturbed territory) should cause an increase of pain? It is but another instance of the misapplication of a remedy.

If applied to hyperæmic tissues, the inflammation is augmented. If to anæmic tissues, they are destroyed. Yet both are too often freely dressed with it. Are we not right when we affirm that as a therapeutic agent, as it is commonly used, a far greater amount of injury than benefit is the result? In view of all these facts, carbolic acid and creosote have for some time been regarded by us with a constantly growing disfavor, until at the present time their employment in our operating room has become very rare indeed. Creosote was some years since banished entirely from the medicine case, and carbolic acid is used almost solely for its local anæsthetic properties. When it becomes necessary to excise soft hypertrophies, a free use of this remedy upon the surface will nearly obtund feeling to a considerable depth. It is also sometimes useful in destroying or diminishing the pain arising from the cutting of sensitive dentine.

As an antiseptic, a solution of salicylic acid is the more powerful, while it is destitute of those offensive qualities which make carbolic acid so objectionable. For cauterizing, a solution of nitrate of silver is much preferable. But the preparation which has largely superseded carbolic acid in our practice is oil of eucalyptus, or eucalyptol. Lack-

ing the irritating qualities of the former, it is quite as effective in treating septic nerve canals. A tooth containing a dead pulp may be freely dressed with it without fear of bringing on an active stage of pericementitis. Indeed, it has been found useful in those painful conditions, and has brought about a resolution when other agents failed.

In cases of irritable, inflamed and congested gums, when carbolic acid has not infrequently been improperly used, a far better remedy is chloride of zinc, injected beneath the turgid tissue and into the pockets formed at the sides of the teeth. A few applications of this will relieve the congested condition, and make practicable the removal of deeply-seated deposits, which are often the source of the trouble.

ETIOLOGY OF DENTAL CARIES.—It is an encouraging sign when so many of the best men in dentistry are turning their attention toward the study of the etiology of dental caries. Most practitioners have heretofore been content to consider the best means of limiting the progress of this disease, without consideration of its origin, or making any effort toward bringing about a change in the condition which resulted in tooth decay. A few thinking men have experimented with widely varying results. In England and in Germany various theories have been propounded, mostly founded upon the hypothesis of a chemical solution of the inorganic portions of tooth structure. In this country, that positive contradiction of the *mens sana in corpore sano*, that sound mind in an unsound body, George Watt, long ago, to his own satisfaction at least, distinctly traced the various kinds of tooth decay to distinctly separate acids, but despite all this the question is yet a vexed one. More recently, such men as Boedecker, Atkinson and Abbott, have pushed the study of histology into regions previously unexplored, but the results so far reached are not yet quite satisfactory. Dr. W. D. Miller, an American dentist residing in Berlin, Germany, has made, and is now making exhaustive researches into the pathology of caries, but the results which he has reached are not entirely in harmony with those of most other investigators, though some of his deductions are unquestionable. The latest writer upon this subject is Dr. C. T. Stockwell, of Springfield, Mass., whose observations and experiments lead him to the conclusion that chemistry has very little, if anything, to do with the matter, but that bacteria are, first and last, the active agents which induce caries. Thus it may be seen that in this country alone there is a wide diversity.

of opinion, of which George Watt upon the one hand, and Dr. Stockwell and Prof. Mayr upon the other, are the extremes, and the problem is as far from a satisfactory solution as ever. But each intelligent investigator is letting in a little more light, and we may hope that the day is not far distant when enough testimony will have been adduced to warrant the formulating of a theory which shall be consistent with all the known facts.

Two years ago, the American Dental Association, recognizing the importance of the subject, formed a new section entirely devoted to the consideration of physiology and etiology, and began to encourage investigation in this direction. Previous to this time, so far as our knowledge goes, etiology had seldom been discussed in that body. At the last meeting another step was taken, and a prize of two hundred dollars was offered for the best paper upon that subject, to be based upon original investigations. It is to be hoped that the results of this offer may be something worthy the subject. Yet even now so few of the members of that body are interested that but three men chose to be enrolled in that section. The opportunities for unlimited talk on the basis of a very slender amount of original observation are so much greater in other sections, that it is little wonder that the speech-makers seek those fields. But there is already a promise of better things, and next year it is to be hoped that the consideration of the causes of the decay of teeth will occupy much of the attention of our more important dental societies. The INDEPENDENT PRACTITIONER purposes to have something to say upon this subject during the coming year.

SAVE YOUR EYES.—We have had our paper made expressly for the INDEPENDENT PRACTITIONER. It is *fine cream laid* and free from glaze. Its color and comparatively non-reflecting surface greatly relieves the eye of the reader, which fact is of the utmost importance to the busy professional man who has to read at night and is dependent upon his keen vision for successful operations.

Our type is long primer, Roman face, and fresh from the type foundry, bought for publishing our journal. It makes the most legible print.

SINGULAR CAUSE OF DEATH.—Mr. William J. Thulman, a druggist of Buffalo, recently came to his death from a singular cause. While eating his dinner a large amalgam filling in one of his teeth became de-

tached, and was swallowed. He immediately expressed his apprehension of trouble from it, but felt no special inconvenience for some days, when he began to experience pain in the abdominal region. The symptoms became aggravated, peritonitis ensued, and he finally died, after much suffering. An autopsy was held by prominent physicians, when it was found that the irregularly shaped mass had lodged in one of the lower folds of the ileum, and had produced an ulcer which had eaten its way through the intestines and finally caused his death.

QUESTIONS OF INTEREST TO THE DENTAL SPECIALIST.—We shall be glad to receive questions upon matters of general interest to the dental profession, and will to the best of our ability answer such through the columns of the INDEPENDENT PRACTITIONER. Incidentally we would mention that to be sure of obtaining the benefit of such answers, if benefits there be, one should be a subscriber. Send in your name to the publishers, and we pledge our best efforts to give you the worth of your money.

EDITORIAL AMENITIES.—Without the knowledge of the Dental Editor of this journal, the *Cosmos* was given an opportunity to perform a usual act of courtesy, which it accomplishes in its own peculiar manner. We acknowledge the hit, and might retort with a *tu quoque*; but this would be somewhat descending from the higher level which we assume and are resolved to maintain. We can therefore smile benignantly upon our ironical *confrere*.

MEDICAL EXCHANGES, articles for publication and books for notice in the Medical Department must be addressed to the "Medical Editor, 411 Lexington Avenue, New York City."

DENTAL EXCHANGES, articles for publication and books for notice in the Dental Department must be addressed to the "Dental Editor, 11 West Chippewa street, Buffalo, N. Y."

PUBLISHERS' NOTICE.

Having assumed the responsibility of publishing the INDEPENDENT PRACTITIONER, it is our object to make the journal first-class in every particular.

Dr. B. M. Wilkerson, the founder and editor of this journal, in his

valedictory, which was published in the December number, expresses his regrets at being compelled to retire from the editorial chair on account of personal matters which imperatively demand every moment of his time.

In his graceful yet "lingering adieu" he extends his sincere thanks to all those who have in any way rendered service to the journal, and requests that they continue to support it under its new management. He says of his successors: "With their ability and energy Vol. IV. cannot fail to surpass in merit and attractive features all its predecessors. Leigh H. Hunt, M. D., of New York City, has undertaken full charge of the medical department. Dr. Hunt, although a young man, has accomplished more than many older members of the profession who claim to have rarilitey talent. He graduated with distinction at the New York College—taking the degree of B. Sc., carrying off the chief honors and medals of his class. He subsequently took the degree of M. D. at the University of the City of New York, Medical Department, together with the first prize for general proficiency, as well as prizes for Chemistry and Physiology. Four months later he was appointed Instructor in the Pathological Laboratory of that institution, a position which he still occupies with credit to himself and satisfaction to the authorities. He has recently translated Charcot's work on old age, which has proved highly acceptable to the profession.

"W. C. Barrett, M. D., D. D. S., of Buffalo, N. Y., has accepted entire charge of the dental department. He is well and favorably known to the dental literary world as a sound and independent thinker, a bold writer and an eminent dental practitioner. Those of our readers practicing the specialty of dentistry are assured that his ability and energy will be fully employed in their service. Physicians will also be interested and edified by reading his selections and original productions."

We have reduced the price of this journal from \$3 to \$2.50, post-free to all parts of the United States and Canada. Postage to all other countries, however, must be added on the following scale, viz., for those within the postal union, 36 cents; for the West Indies, 72 cents (excepting the Bahamas and other islands in the postal union); for Australia, 72 cents (except New South Wales, Queensland, New Zealand and Victoria, for which the rate is 96 cents); for Bolivia and Costa Rica, \$2.40. These extra rates, it is to be observed, are in each case *per annum*.

Profiting by the valuable hints derived from Dr. Wilkerson's experience, added to our own exceptional facilities and further aided as we shall be by such talent on the editorial staff and among the contributors, we are resolved to produce a journal which shall satisfy the subscribers as well as redound to the credit of the

COLUMBIA PUBLISHING COMPANY.

Current News and Opinion.

THE NEW YORK MEDICO-LEGAL SOCIETY.—At the regular stated meeting, held at Mott Memorial Hall December 6, 1882, officers were elected for the ensuing year as follows: Clark Bell, Esq., President; Prof. R. O. Doremus, 1st Vice President; Hon. D. C. Calvin, 2d Vice President; L. P. Holmes, Esq., Secretary; G. R. Hawes, Esq., Assistant Secretary; J. Shrady, Esq., Treasurer; R. S. Guernsey, Esq., Librarian; A. H. Smith, M. D., Curator and Pathologist; M. Ellinger, Esq., Corresponding Secretary; Prof. C. A. Doremus, Chemist; E. H. M. Sell, M. D., and B. A. Willis, Esq., Trustees; A. G. Hull, Esq., and M. H. Henry, M. D., Members of the Permanent Commission. The papers of the evening were by O. W. Wight, M. D., of Detroit, entitled: "What is Expert Testimony, and Who are Experts?" and by E. Sanders, M. D., entitled "Our Coroner System: Shall it Continue to Exist?" Submitted but not read.

THE BROOKLYN DENTAL SOCIETY.—At the last monthly meeting of this Society, which was held at Dr. Thompson's house, corner of Adelphi and Spring avenue, a highly interesting discussion took place upon one of the live subjects of the day, viz., Germ Caries. An able paper by Dr. Stockwell, entitled, "Dental Caries—Acids or Germs, Which?" was read to the Society by Dr. Cook, after which the President, Dr. Brockaway, called upon Dr. F. Y. Clark, of New York, to address the meeting, which it was gratifying to observe was so largely and influentially attended. Dr. Clark proceeded to read a series of extracts from former papers of his own, and then gave a general and admirable explanation of the subject, which was further taken up and discussed by Doctors Wilson, Cook, Johnson and others. Finally a resolution was unanimously passed requesting Dr. Clark to resume the

subject at the next monthly meeting, which is to be held on the 8th of January at the house of Dr. Cook, No. 133 Pacific avenue, when Dr. Stockwell is to be specially invited to attend. After the adjournment of the Society, Dr. Thompson gave a handsome "spread" to the members present.

FROZEN FOOD.—The *Medical Times and Gazette* says it is not generally known that some millions of the human race subsist for one-third of the year on frozen food, not only meat and fish, but also butter, game, milk, etc. We do not refer to the Esquimaux or Samoyedes, but to people living in the utmost affluence, who are compelled to resort to this kind of diet as often as winter comes round. That it is not unwholesome, appears from the fact that (excepting in St. Petersburg) the death rate is no higher in the towns inhabited by people using this food than in the average of towns in France; and that the meat loses none of its flavor after months of freezing is admitted by all travellers. It will not be over the mark to say that twelve millions of people in the Northern Hemisphere consume one million tons of frozen food during the winter months. This does not include the frozen meat consumed in England.

AN UNDESCRIBED DISEASE OF INFANTS.—Dr. Riga (*Movimento Med. Chir.*) has observed a pernicious disease of the mucous membrane of the child's mouth. It consists of the formation of a false membrane between the end of the tongue and the frænum. The membrane is round and small. Children in whose mouth this appears lose strength rapidly, refuse to nurse, and ninety per cent. of them die. The disease has been observed only in summer, and is always associated with intestinal catarrh. It lasts from two to eight weeks. It is found in children only during the first dentition; it is not contagious, but appears to be infectious. In the Terra di Levoro the disease has been endemic for sixty or seventy years. During the past decade there has been no diphtheria in that region. No scientific study of the disease or membrane has yet been made.—*Phys. and Surg.*

THE MOST EFFECTUAL ENGINE DISCS which we have ever used are made of sand-paper. To be sure they are short-lived, but they are cheap and easily prepared. Use Baeder, Adamson & Co.'s, No. 1 and No. 2 sand-paper, coat the smooth side with gum shellac, cut out the discs with a gun-wad punch, make a hole in the centre with a rubber-dam

punch and mount on a screw-head mandrel. For finishing gold fillings and for separating teeth we have found them unequalled, and if any of our readers have never tried them we advise them to be strangers to them no longer.

THE CAUSES OF MALARIA.—Signor Torelli, who has recently published a map illustrating the prevalence of malaria in Italy, holds that the two principal causes of malaria are the spread of railways and the destruction of forests. Railway embankments interfere with natural drainage, and the destruction of forests causes long periods of drought, during which the earth becomes dry and porous as a sponge, so that when the rain does fall, instead of running off from the surface it is absorbed by the soil, which thereupon remains moist and gives forth noxious vapors for a long period.

PROFESSOR KOCH'S DISCOVERY DISPUTED.—At a meeting of the New-Orleans Pathological Society, November 20, the President, Dr. H. D. Schmidt, made an important microscopic demonstration to disprove the reported discovery of Professor Koch, in Berlin, as to the bacilli of tuberculosis. Dr. Schmidt claimed to demonstrate that the bacilli thought by Dr. Koch to be the cause of tubercular consumption were simply fatty crystals. Dr. Schmidt, whose researches have been long and minute, is confident that Dr. Koch is in error.

DR. J. WILLISTON WRIGHT, Professor of Surgery in the University Medical College, who has recently been appointed one of the visiting surgeons to Bellevue Hospital, a few weeks ago successfully performed the operation for removal of the kidney. Extirpation has been performed not over one hundred and twenty times and, of this number, only about fifty patients made a good recovery. Dr. Wright's patient is of the latter category.

BOSTON HEALTH ORDINANCE.—By an order adopted November 22, the Boston Board of Health forbade public funerals over the remains of persons who have died of smallpox, scarlet fever, diphtheria, or typhus fever, unless the written permission of the board is first obtained. Bodies of such persons must be placed in tight coffins and may not be exposed to view.

QUININE IN ABORTION.—The question of the production of abortion

by large doses of quinine is still a mooted one. Manson, in the *Maryland Medical Journal*, regards its administration as a preventive of it, his views being based on a forty years' experience in a malarial district.

DR. HOLMES' SUCCESSOR.—Dr. Thomas Dwight, former Professor of Anatomy at Bowdoin College, and grandson of Dr. John C. Warren, the predecessor of Dr. Holmes, will complete the course of lectures on anatomy at the Harvard Medical School this winter.

PROFESSOR BRYANT, of Bellevue Hospital Medical College, has been appointed Surgeon-General of the State of New York by Governor-elect Cleveland.

BEGINNING with the number for Saturday, January 6, *The New York Medical Journal* becomes a weekly instead of a monthly.

Bibliographical.

A Guide to the Practical Examination of Urine. By JAMES TYSON, M.D. Philadelphia: P. Blakiston, Son & Co. 1883.

The fourth edition of this little work does not materially differ from the previous editions. This one contains a rather more exhaustive treatment of several important points concerning urinary analysis, and a few typographical errors are corrected. Though not containing much especially new, the arrangement and the practical hints that the author gives from his large experience make it valuable to busy practitioners who may need a handy and reliable book of reference, and to students preparing for an examination in the subject. Vogel's scale of urine hints is given along with not unfamiliar analysis of urinary calculi.

Electricity in Medicine and Surgery. GEO. C. PITZER, M.D. St. Louis: 1883.

This little work of eighty-three pages does not pretend to deal with the domain of electro-therapeutics in all its various applications. But the object is to furnish the medical student with "the principal facts" of this subject, which to-day is becoming more and more prominent.

The practitioner who has not studied clinically the *modus operandi* of electrical manipulation will find concise rules for the application of this valuable remedy. Indeed, to one who has employed electricity, the details may seem too simple and too lengthy. But this, to-day is a fault on the right side; and as Dr. Pitzer writes for novices, whether students or physicians who have paid but little attention to this branch, he certainly deserves great praise for his method. The therapeutical part of the work should be enlarged; too large a part now consists in the description of mere apparatus, which, however necessary, is of less importance to the practitioner than therapy. No doubt future editions will remedy this.

Transactions of the Michigan Dental Society, at its twenty-seventh annual session, held in Detroit, in March last, are received.

To properly prepare for publication the discussions and debates at such a meeting from the minutes of a stenographer unacquainted with the technicalities of a profession—to present the essence of what every speaker says, no matter how diffuse he may be, nor at what wild tangents he may fly off, to keep the subject matter prominently before the reader despite the wanderings of the speakers—is no easy matter. There are few men who can, without previous preparation, so speak that a verbatim report will clearly express to the reader what the speaker wishes to say. It is the duty of a publication committee to make sense out of the jargon too often submitted to them, to correct the inaccuracies, to harmonize the inconsistencies, and to reduce a mass of seeming chaos to order and sequence, too frequently a task demanding the entire rewriting of long harangues.

The work under notice has been well done. The debates are very fully reported, and the spirit of the themes well preserved.

The Michigan State Dental Society is made up of intelligent and earnest men, and it is little wonder that this, the quarto-centennial anniversary, should find it at a high pitch of prosperity.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Vol. III. Authors and Subjects. Cholecyanin to Dzondi. Washington: Government Printing Office, 1882. Quarto. 1,020 pp.

We are in receipt of the third volume of this carefully elaborated catalogue, representing ten thousand and seventy-six volumes, and seven thousand three hundred and eighty-six pamphlets, all catalogued so as to concisely and clearly represent a bibliography of the utmost

value to one who wishes to be thoroughly conversant with the literature, past and present, of any one of the (contained) subjects. We notice that medical literature, as exemplified by this library, is especially rich in works concerning cholera, dysentery, diphtheria, diabetes, conjunctivitis, and in those relating to the cranium, in health and disease, with operations thereon.

It is interesting merely to read over the titles of serious essays upon "Epidemics of Demonology," "Human Spontaneous Combustion from Alcoholismus," and "Tea and Coffee in France According to the System of Hippocrates." The labor of compilation must have been immense. The typography and arrangement are most excellent, and the whole book is thoroughly workmanlike.

Water Analysis. A Handbook for Water-Drinkers. G. L. AUSTIN, M. D., N. Y. Boston: Lee and Shepard, 1883.

This neat little volume tells the uninitiated how to determine the wholesomeness or unwholesomeness of the drinking water. The test-case containing all the apparatus and reagents necessary is obtainable for \$10.

The microscopical examination of drinking water and the sediments therein is summed up in the statement that "animal life in water affords good evidence of the presence of a sensible amount of organic matter or filth." It fails to tell us, however, what to do should we find the water impure, which in the case of Croton water would be the most probable result of an examination.

Etiology of Dental Caries—Acids or Germs, Which? This neat pamphlet, reprinted from the *New-England Journal of Dentistry*, is the latest contribution to the study of etiology, and is from the pen of Dr. C. T. Stockwell. In it he urges the theory of the bacterian origin of tooth decay, and presents a very plausible case. Whether accepting or rejecting his conclusions, one cannot fail to admire the zeal with which the author pursues his investigations, and the earnestness with which he presents his views. Right or wrong, such men are the pioneers of progress. The article is a notable contribution to the literature of the subject.

Importance of Direct Sunlight in the Work-Room. By J. N. FARRAR, M. D., D. D. S. A reprint from the proceedings of the seventeenth annual meeting of the American Dental Association, in which the

influence of the sun's rays upon the bodily health of people engaged in sedentary pursuits is fully considered, and the advisability of a southern exposure for the operating rooms of dentists urged.

Specialties and their Advantages. By DR. GEO. A. MILLS. A paper read before the American Dental Convention, at its last annual meeting at Saratoga.

The author urges the necessity for a devotion to a particular field of medical or other sciences, if any great progress is to be made, and cites numerous examples to sustain his views.

Proceedings of the American Society of Microscopists. Fifth annual meeting, held at Elmira, N. Y., August, 1882. This is a model report of a memorable meeting. Thirty-two papers were presented, some of them of great interest. We hope to make some extracts from this volume of nearly three hundred pages in a future number.

PAMPHLETS FROM DR. MILLER.—We have received from Dr. W. D. Miller, of Berlin, a number of pamphlets and reprints, originally contributed by him to German scientific journals, chiefly *Virchow's Archives*, a translation of some of which we propose at no distant day to present to our readers. As a tireless investigator and a careful observer, Dr. Miller is winning an enviable reputation abroad.

PAMPHLETS RECEIVED.—*Treatment of Arthritis of the Temporo-Maxillary Articulation*, and *The Application by Insufflation of Medicated Powders to the Upper Air-Passages for the Relief of Catarrhal Conditions*. D. H. GOODWILLIE, M. D., D. D. S. G. P. Putnam's Sons, N. Y., 1882.

Obituary.

THE DEATH OF SIR THOMAS WATSON, the Nestor of British physicians, at the advanced age of ninety, removes from the medical ranks the last of what may be accurately called the old school of physicians. Sir Thomas is known among us chiefly by his "Practice of Physic," a work that forms the first reading "in practice" of the majority of students. Sir Thomas described with an accuracy and insight that left nothing to be desired. His book (almost his only literary work) was essen-

tially for the practitioner, and even to-day we turn to it for opinions and pictures of disease that have not, nay, cannot be excelled.

Sir Thomas was graduated from Cambridge University in 1815, and was knighted in 1866. At the time of his death he was physician-in-ordinary to the Queen.

H. S. McCall, M. D., M. D. S., died at his residence in Binghamton, N. Y., December 10. Dr. McCall was born in Franklin, Delaware County, N. Y., June 24, 1824. He graduated from the Woodstock Medical College and began the practice of medicine in his native town, subsequently removing to Batavia, N. Y. Forsaking general medicine, he entered the office of the late Dr. Fellows, at Albion, and began the study of dentistry. In 1855 he removed to Binghamton and opened an office, soon becoming widely known as a skilful and conscientious operator. He was prominently connected with the New York State and the Sixth District Dental Societies, where his unassuming manner and genial temperament won him hosts of friends, who will sincerely mourn his death.

DEATH OF M. DAVAINÉ.—In a recent number of *Le Progres Medical* we find a note announcing the decease of M. Davainé, at the age of seventy years. Davainé's contributions to helminthology are well known, and the journal alluded to credits his writings with having played a leading part in clearing up the question of the anthrax group of diseases in man and in the lower animals.

Medical Programme.

FOR JANUARY.

KING'S COUNTY MEDICAL SOCIETY.—The annual meeting for the election of officers is to be held on the third Tuesday in January (the 16th), 1883.

NEW YORK COUNTY MEDICAL SOCIETY.—Stated meeting, 22d January.

THE BROOKLYN DENTAL SOCIETY will hold its next monthly meeting

at the office of Dr. C. D. Cook, 133 Pacific avenue, on the 8th of January.

[Under this head we shall publish, each month, a programme of meetings of all the Medical and Dental Societies of this and neighboring cities. If the Secretaries of the Associations will send us one month in advance the date and place of meetings—regular, special and annual—we shall be happy to insert them here for the convenience of our readers. Hereafter the date of this programme will be made from the 15th of the month of issue to the 15th of the following month.]

Popular Science Department.

BEHAVIOR OF THE WHITE CORPUSCLE.—On the 7th of August, 1882, I was examining the blood of a patient, a robust man in fine health. The blood seemed in excellent condition; the proportions of the elements were all that could be desired. The medical history of the case has nothing to do with this observation and hence is omitted.

In the specimen of blood examined there were a few of those glistening round bodies which are present more or less in all blood that I have examined. The name and functions of these bodies are alike unknown to me and are, I believe, matters of dispute among histologists at present; but whatever end they may fulfill they have been present in the greatest number in the blood of debilitated patients who were for the most part consumptives; still, as before remarked, they have been observed in the healthiest blood.

In the blood in question the white corpuscles were unusually large and active, and one in particular attracted my attention by the rapidity of its movements. I saw it glide toward one of these glistening bodies and surround it, insinuate itself underneath it, and, so to speak, get the body upon its (the corpuscle's) back. Carrying this body along it approached another and executed the same maneuver, and so with another and another, until six of these bodies of different sizes were upon the white corpuscle. Then one after another sank into the interior of the white corpuscle and could be seen in it as dark specks, the shade gradually becoming less deep, as if the bodies slowly dissolved away, the smallest first disappearing.

The sixth body did not sink into the corpuscle, but the corpuscle slid from under it and left it resting upon the slide. The corpuscle next retreated a short distance and, extending another part of its substance, again approached the body and nearly surrounded it. Again the corpuscle retreated, and again returning, endeavored apparently to surround the body, but unsuccessfully. These movements of apparent attack and retreat were repeated several times, and at last the corpuscle moved off a distance equal to the diameter of six or seven red corpuscles. I thought then the performance was at an end, but no, the corpuscle suddenly stopped and returned again to the body; this time it had so rolled over as to present to the body the exact place through which the largest of the other five bodies had passed into its interior; it then extended itself out under the body, so as to raise the latter up from the slide. The body now occupied the position of a ball in a cup and began slowly to sink into the corpuscle. Suddenly, however, it slipped out, rolled off of the corpuscle, and fell upon the slide with a little rebound. The white corpuscle now apparently gave up the attack and moved rapidly away. The time of observation was about three and a half hours. The instrument was a one-quarter inch objective (Tolles), a one-inch eye-piece and an amplifier in the tube.

I do not desire to theorize nor draw inferences on this behavior of the white corpuscle, but simply record the facts as I saw them.—*R. J. Nunn in the Microscope.*

THE STEAM STREET SUPPLY IN NEW YORK.—There still seems to be trouble in keeping the joints tight under our streets. The screw joints do not seem to hold their own, either from inadequate material to give strength to the fittings, unusual strain by expansion, or unskilled labor in screwing the threads home, as fresh outbreaks are of almost daily occurrence.

Screw fittings should be made unusually strong and suited in every particular to the magnitude of the work, for there is no economy, and at most a mere make-shift, in the resort to the use of clamps and putty. The cause that disturbs or ruptures the joint at first will soon affect the clamps.

In our comments upon the progress of the steam supply in our issue of December 9, we aimed to criticise the want of care and time in making up the rubber combination joints. We were far from intending to find fault with the rubber combination itself as a packing

(the Jenkins), which is now so extensively used for steam and other purposes, and has the highest reputation for excellence. We have in mind an example where this packing is now in use with steam under a pressure of from 150 to 225 pounds to the square inch, and was tested to near 300 pounds.

The first screwing up of bolts upon the flanged joints was not final, but gradual, as the heat and pressure was increased, until a solid vulcanite was obtained between the faces of the flanges.—*Scientific American*.

Vital Statistics.

The fiscal year of the Board of Health closed at noon Jan. 1, and it was then ascertained that during the period mentioned 37,951 deaths, 27,351 births and 11,085 marriages had been recorded, which was a decrease of 673 deaths and an increase of 1,221 births and 1,008 marriages over the figures of the previous year, and an increase of 9,609 deaths, 1,748 births and 2,639 marriages over those of 1880. The following table shows the statistics by months and the totals for the two previous years:

MONTH.	Deaths.	Births.	Marriages.	MONTH.	Deaths.	Births.	Marriages.
January.	3,498	2,278	925	September. . .	2,579	2,365	927
February.	3,298	2,092	946	October.	2,588	2,471	1,064
March.	3,481	2,506	820	November. . .	2,461	2,292	1,000
April.	3,395	2,042	784	December. . .	2,616	2,531	1,069
May.	3,353	2,150	1,000				
June.	2,871	2,065	980	Totals.	37,951	27,321	11,085
July.	4,482	2,060	732	Totals, 1881.	38,624	26,130	10,077
August.	3,329	2,469	838	Totals, 1880.	28,342	25,573	8,446

The Varieties of Disease.—Of the deaths during the year 1,389 were due to violence, 199 to suicide, 198 to drowning, 103 to solar heat, 269 to smallpox, 912 to measles, 2,070 to scarlet fever, 1,521 to diphtheria, 730 to croup, 655 to whooping cough, 151 to erysipelas, 66 to typhus fever, 363 to typhoid fever, 533 to malarial fever, 408 to puerperal diseases, 237 to cerebro-spinal meningitis, 232 to alcoholism, 184 to rheumatism and gout, 625 to cancer, 5,245 to consumption, 1,591 to bronchitis, 3,408 to pneumonia, 1,443 to heart disease, 937 to marasmus and scrofula, 652 to hydrocephalus, 745 to meningitis and eucephalitis, 640 to convulsions, 609 to apoplexy, 1,860 to Bright's disease, 2,980 to diseases of brain and nerves, 943 to gastritis and peritonitis and 4,058 to diar-

rheal diseases ; 12,522 belonged to the zymotic class, 7,844 were constitutional, 15,000 were local, and 2,196 were developmental. Of those that died 9,875 were children under 1 year, 13,447 were under 2 years, 17,305 were under 5 years, and 2,342 were over 70 years ; 8,311 were married and 3,903 widowed ; 7,518 of the deaths in public institutions, 20,690 in tenements, 8,832 in houses containing families of three and less and 388 in hotels and boarding-houses ; 456 dead bodies were found in the rivers and streets ; 239 of the pauper dead were delivered to the surgeons for dissection.

Accidental Deaths and Suicides.—Twenty-five persons were accidentally poisoned—1 by taking rat poison, 1 by soothing syrup, 1 by acetic acid, 4 by opium, 7 by lead, 2 by laudanum, 1 by chlorate of potash, 2 by iodine, 1 by carbolic acid, 1 by whiskey, 1 by bromide of potash, 1 by morphine, 1 by hydrate of chloral and 1 by arsenic. One hundred and fifty-eight of the accidental deaths were caused by fractures, 31 by wounds, 110 by being run over, 356 by falls, 53 by scalds and 82 by burns. There were 75 homicides during the year, 34 resulting from blows, 13 from cuts and stabs, 19 from shooting, 1 from being thrown from a roof, 1 from being thrown from a window, 1 from elevated train, 1 from scalds, 3 from miscarriage, and 2 were asphyxiated. One hundred and sixty-five males and 34 females committed suicide; 1 was a boy of 13, another a girl of 14, and 2 were over 80 years old; 14 killed themselves by drowning, 29 by hanging, 20 by cutting, 53 by shooting, 12 by jumping out of windows, 2 by throwing themselves in front of locomotives, 18 by taking Paris green, 4 by laudanum, 8 by arsenic, 4 by prussic acid, 5 by oxalic acid, 2 by strychnine, 3 by carbolic acid, 7 by rat poison, 1 by aconite, 1 by inhaling chloroform, 1 by unknown irritant poison, and 1 was asphyxiated by the fumes of charcoal; 47 were unmarried, 79 married and 24 widowed; 3,879 inquests were held by the Board of Coroners.

Deaths of Centenarians.—Thirteen persons died during the year whose ages were 100 years and over. They were as follows:

John Davis (colored), single, born in this city, aged 104 years; Margaret Martin (colored), widow, born in this city, aged 103 years; Dennis Skelly, widower, born in Ireland, aged 105 years; Ann Spencer, widow, born in Ireland, aged 105 years; Ann Donnelly, widow, born in Ireland, aged 100 years; Catharine Stevenson, widow, born in Ireland, aged 100 years; Mary Smith (colored), widow, born

in Virginia, aged 107 years; Bridget Haley, widow, born in Ireland, aged 107 years; Sarah A. Saunders (Indian), widow, born in Pennsylvania, aged 100 years; Mary Gillen, widow, born in Ireland, aged 102 years; James Gilman, widower, born in Ireland, aged 100 years; Elizabeth Rice, widow, born in Ireland, aged 100 years, and Margaret Londrigan, widow, born in Ireland, aged 100 years.

There were 36 persons whose ages reached 90 years and over; 14 of them were men and 22 were women; 9 were natives of the United States, 18 of Ireland, 6 of Germany, 1 was a native of Poland, 1 of Bohemia and 1 of France.

The fathers of 18,158 of the children born were of foreign birth and of 9,163 natives, and the mothers of 15,960 of the children were of foreign birth and of 11,361 natives; 26,999 of the children born were white and 329 colored; 14,068 were males and 13,255 females. There were 187 twin births and one mother was delivered of triplets.

Marriage Statistics.—During the year 11,085 marriages were performed, and of the grooms 10,842 were white and 243 colored, and of the brides 10,852 white and 233 colored; 9,163 grooms were married for the first time, 1,455 had been previously married, 116 were married twice and 6 three times; 9,394 brides were married for the first time, 1,235 were widows, 46 had been married twice, and 1 was married to her fourth husband; 204 grooms and 2,651 brides were under 20 years, 14 grooms and 2 brides were between 65 and 70 years; 14 grooms were between 70 and 80 years, and 1 was between 80 and 90 years.

CONTAGIOUS DISEASES BY MONTHS.

MONTH.	Scarlet Fever.	Diphtheria.	Typhoid Fever.	Typhus Fever.	Cerebro-spinal Meningitis	Measles.	Smallpox.
January	1,329	687	46	—	24	866	187
February	1,167	461	30	16	23	825	183
March	1,054	451	25	38	20	756	143
April	888	391	22	45	17	637	69
May	758	323	25	57	23	768	71
June	367	229	20	42	31	299	37
July	154	172	40	4	16	130	9
August	115	141	96	4	20	56	1
September	87	116	117	1	20	21	2
October	110	153	147	—	12	40	3
November	124	185	68	—	12	60	3
December	199	190	48	—	16	164	—
Totals	6,793	3,504	684	207	234	4,633	708
Totals for 1881	7,338	5,272	965	568	556	3,116	1,342
Totals for 1880	3,048	3,307	508	2	197	3,891	67
Totals for 1879	5,446	1,783	432	8	119	2,333	65

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ARTICLE I.

MEDICAL CLINIC

BY PROF. JAS. T. WHITTAKER, M. D., CINCINNATI.

At the Good Samaritan Hospital, January 8, 1883.

REPORTED BY DR. W. H. WENNING.

CASE I: *Œdema Pulmonum*.—Mrs. S., aged sixty-three; native of Ireland, resident of this city. Admitted January 5.

States that she took a very severe cold, accompanied by cough and dyspnœa. She has often had a difficulty of breathing whenever she took cold, she said. She also acknowledged to drinking pretty freely at times, but never to drunkenness.

Her temperature when admitted was $100\frac{1}{2}$ degrees; respiration, 48; pulse, 120 to 130. The temperature afterward fell to normal, but the respirations continued very rapid, being about 50 per minute when at rest. The expectoration is muco-purulent.

Auscultation reveals abundant coarse and fine rales of the mucous variety all over the chest. Percussion reveals nothing abnormal.

The urine contains a trace of albumen, but has not yet been subjected to microscopic examination.

Gentlemen: After having heard the history of this case by Dr. Paulding, I call your attention to the general appearance of the patient.

You notice the distress depicted on her countenance, the shallowness and rapidity of respiration, and the bluish pallor of the face. You also observe that the decubitus is on the left side; she cannot lie on the right side, and becomes faint when she sits up. Her cough is moist and the expectoration is abundant. From these symptoms you evidently will suspect disease of the lungs, but we must determine what is the exact condition. Our first suspicion is pneumonia. On percussion, however, you hear tympanitis instead of dulness, as you would expect to find in pneumonia, at least in the stage of hepatization; then there is here unusual resonance. On auscultation I hear no bronchial respiration but fine moist rales, especially at the base of both lungs. We must, therefore, exclude pneumonia, at least in the stage of consolidation. You have heard from the history that she has been subject to the delirium potatorum. Such a condition as this is apt to come on frequently and suddenly in these subjects, and the cause of the dyspnoea is often said to be due to the lungs, which, however, are not the cause of the disease. It is more probable that this is a case of chronic Bright's disease. The urine is clear and scant, and contains but a small amount of albumen; but these are often just the worst cases of this disease, namely, cirrhoses of the kidneys. The final catastrophe of cases of this nature is here, namely cedema pulmonum, a not infrequent termination of Bright's disease, and next to brain disease the most serious complication of a cirrhotic kidney. This condition accounts for the difficult respiration. As the fluid accumulates in the lungs it fills the air-cells and the patient struggles for air and is in danger of suffocation. The interest centres now altogether in the condition of the lungs; there is not here the brick-dust or prune-juice expectoration characteristic of pneumonia; the sputum is frothy and purulent, and from the cough as you just hear it you recognize that the secretion in the tubes is in great quantity.

But you may also find this condition in chronic valvular disease, which we eliminate here, however, by the absence of any murmur. Some of these cases of heart disease die of manifestations on the part of the brain when the aortic valves are the seat of disease, but in the most frequent if not dangerous form, namely, mitral regurgitant lesion, we may observe cedema of the lungs.

The subjective signs we have just been considering. Besides these we have plain objective signs, as want of expansion of the chest and increase of resonance, due to the contraction of the muscles of the

chest. On auscultation we discover that the fine crepitant rale so characteristic, though by no means pathognomic, of pneumonia is not here, but fine mucous rales everywhere, indicative of the fluid in the air-cells.

The dyspnœa and partial cyanosis are due to this occlusion of the air-cells, but patients with Bright's disease often show dyspnœa independently of œdema pulmonum, as the effect of uræmic poisoning. In fact most of these attacks are uræmic asthmas and not mere mechanical occlusions, and the dyspnœa is only one of the numerous brain symptoms of Bright's disease.

The prognosis of œdema pulmonum, from whatever cause, is always grave. Though not every one must necessarily terminate fatally, it is an indication of extreme danger.

For this reason stimulation is called for. Digitalis and alcohol must be freely given. We appeal directly to the heart and indirectly to the kidneys by the administration of digitalis, which by stimulating the heart forces more blood through the kidneys, and consequently more urine is excreted. Our patient takes a tablespoonful of the infusion of the leaves every two hours and two tablespoonfuls of whiskey-punch every three hours. I repeat it, digitalis pushes the blood through the lungs and whips up the action of the kidneys by propelling a larger amount of blood through them. In these cases it often acts like a charm, and in many cases which have been neglected and death seems imminent from œdema of the lungs, the prompt administration of digitalis produces a different aspect in the cases in eight or ten hours. This patient has improved greatly since this morning. You may give the fluid extract or the tincture, but the best preparation by far is the infusion of the leaves, freshly made. To many cases of Bright's disease gone so far as to be bloated with dropsy, you may give months or even years of life with digitalis. Combine it in these cases with a salt of soda or potash and you will get a quicker effect. But there is no question of curing this patient, I may say, now that she is removed. Should she recover from this attack, she will succumb later to some other lesion peculiar to, and apt to occur in, this form of kidney disease. I show you the case because of the general interest connected with œdema pulmonum, so often in the long chain of disease processes belonging to cirrhosis of the kidneys, the final link.

[The patient died four days later, but an autopsy was not permitted.]

CASE II: *Typhoid Fever with Relapses*.—Brother Modesta, aged twenty-

eight, a native of Ohio, resident of Notre Dame University; occupation, teacher; admitted November 26, 1882. Patient states that he had been sick for a week, but had not taken to his bed, thinking that it was some transient ailment that would soon pass away.

He had epistaxis at the start, chilly sensations, fever and diarrhoea.

When admitted his temperature was $102\frac{1}{2}$ degrees in the evening and $101\frac{1}{2}$ degrees in the morning, which record was maintained without any material deviation until the fifteenth day of his illness, when there was a slight decline and the temperature went down about one degree per day until it was normal. The axillary temperature alone was taken.

The patient after a day or two was allowed more substantial food, and upon the third day sat up for a half hour while his bed was being changed (December 6th).

On the fourth day after his temperature reached normal there was another rise and the patient complained of severe paroxysms of pain in the rectum, which were relieved by injections of hot water. The temperature continued high for three days, then fell to normal, to again rise gradually for a few days until it reached $101\frac{1}{2}$ degrees in the mouth and continued at that height with the exception of morning remissions for three weeks. The rise and fall marked the typical typhoid curve.

Again for the fourth time the temperature rose, continued a week and fell by lysis. His food throughout has been fluid—milk, soup, beef tea, egg nogg, etc. There has been no diarrhoea, but very little cough and that not constant. No abdominal distension and no head symptoms. The patient has used the bed pan and taken exceptional care of himself. The last rise of temperature seemed to be controlled by quinine, which had no effect on previous occasions.

* * * * * * *

The history of this case shows that we have had to deal with a mild typhoid fever, but with several distinct relapses. Although this patient was surrounded with all additional precautions on account of the death from perforation that occurred in a mild case here a short time ago, he had three, if not four distinct relapses, and though each attack was mild, the sum of them all has reduced the patient to an extreme degree.

Relapses occur in about eight per cent. of all cases of typhoid fever. They are, as a rule, milder than the original attack, and when a patient

succumbs in such relapses it is because he is left more debilitated by the original attack than before the onset of the disease. Death may thus occur independently of complications in the mildest as well as in the most severe forms of typhoid fever.

The history further shows that the fever in this case was abortive, terminating in fifteen days. Now not very rarely the disease is cut off at the end of the second week instead of the third week, and if a remedy shall have been administered at the time, it is credited with having cured the disease. This patient had a normal temperature for two or three days, when he was allowed some raw meat. A relapse then occurred, which I do not, however, attribute to the diet, or to the fact that the patient sat up in bed, but to the original poison. It was formerly supposed that with every renewed attack there was also introduced some new poison into the system. This is not so; a relapse means that the contamination is still present in the body and its action on the system has been delayed. If a patient has had typhoid fever once, he has had the disease, as a rule, once for all for the rest of his life. If you put organic substances in different test tubes at the same time exposed under the same conditions to the same atmosphere, you will find that putrefaction occurs on different days in the different tubes. So also here Peyerian glands may be successively attacked, and relapses occur independently of indiscretions of any kind.

A matter of consolation for the physician as well as the patient is the fact that the relapse is always milder than the first attack. Generally the patient will nevertheless recover unless too much reduced by the original disease.

A case of this kind might at first be mistaken for relapsing fever. This disease is rare here, but occurs frequently in sea-port towns. In Philadelphia it was not long ago epidemic. It somewhat resembles typhoid fever, but does not show its step-ladder rise of temperature in the first week. In relapsing fever the patient has a temperature at the start of about 103 or 104 degrees, when he is ill for a week with continued fever, but at the end of this time or nine days the temperature falls suddenly, to remain normal for a week, when it takes again a new rise. Thus one or several relapses may occur. This is the main point of diagnosis, though the absence of nose bleeding, rose spots and head symptoms in relapsing fever are additional factors. Lastly, relapsing fever shows the characteristic spirochates in the blood during the stage of pyrexia.

In some cases the diagnosis becomes more difficult between typhoid fever and miliary tuberculosis. The nose-bleeding, chill, rise of temperature, bronchial cough, meteorism and diarrhoea may all be present in tuberculosis, and it is only by the examination of the sputum for the bacillus according to the methods you have so often heard described that you can positively establish the diagnosis.

The case before us, however, leaves no room for doubt on account of its typical course. The occurrence of one relapse is not uncommon, but it is unusual to have two or three. This patient is now in a fair way of recovery, but he must not have any solid food for two or three days. Then he may have at first some raw meat or underdone beefsteak, sweet-bread, soft boiled egg, game, and later the more digestible vegetable foods, as celery, baked potatoes, etc. As long as there is any headache or symptoms of prostration he must not rise from his bed. He may take alcohol freely, because it is the best food and drink and drug in every case of fever.

CASE III: *Locomotor Ataxia*.—The last case that I present to you to-day is that of this young man, who, as you see him entering the room, has some difficulty in walking. He says that about one year ago he felt his legs getting weak. He also felt a dizziness in the head, severe pain in the back and cramps in his lower extremities. I ask him to stand still with his eyes shut, and you see that he wavers. It is with the greatest difficulty that he can stand on the left leg alone and it is next to impossible for him to stand on the right alone. I test the patellar tendon reflex and find it good in the right, but very defective, almost *nil*, in the left knee. In testing for this valuable sign you must, however, recollect that there is no rule without exceptions. This phenomenon is found absent normally in about two per cent. of healthy adults and five per cent. of children. In very fat persons it is difficult to elicit it unless they are made to sit on a table, with the legs hanging over its edge. When it has once been recognized as having been present and is then abolished it is a diagnostic sign of the greatest value.

What is the matter with this patient? *Locomotor ataxia*. You have by this time become perfectly familiar with this disease, for this is the fourth time in as many weeks that I have been able to present this disease. When locomotor ataxia has once progressed so far as in this instance there is no difficulty in recognizing it, but we ought to endeavor to diagnosticate it early.

One early feature of this affection is parasthesia, as a sense of crawling of ants on the limb, a symptom which has here been absent and is only recognized, as are the various alterations in sensation, by those whose attention is easily arrested by anomalies. An individual like this, laboring from day to day, pays little heed to such sensations. Sometimes this prodroma precedes the development of atactic symptoms, as you see them here, even ten to fifteen years. Disturbances of vision, satyriasis and impotence, and lancinating pains in the pelvis are other pioneer symptoms in this disease. We hope to hold the disease in check for a while at least by such measures as I have mentioned to you before, viz., Faradization, cold shower baths, rest, etc. Absolute rest is of great value, and it is for this reason that these cases can be treated much more successfully in a hospital than in private practice.

Eulenburg maintains that he has cured locomotor ataxia with the salts of silver. The use of silver internally in this disease is not new, but Eulenburg's method, the hypodermic injection of the subsulphate, is new, and is recommended because of the change which the remedy suffers in internal administration.

We may never forget to look for the cause of the disease; seventeen out of twenty cases have a history of preceding syphilis. This patient had a hard swelling in the groin five or six years ago, which speaks for the character of the disease. This indicates the line of treatment to be followed first. He shall take twenty grains of potassium iodide three times a day, and we are led to expect some benefit from it, because he has never been put upon this treatment before.

EFFECTS OF ALCOHOL.—“Dead drunk” is described by savants of the Paris Biological Society to be a condition in which there is a proportion of one part of alcohol to 195 parts of blood in the circulation. Should the proportion ever come to be one part of alcohol to 100 of blood, death would ensue. This might happen, and, in fact, has happened repeatedly, where a very large quantity of alcoholic liquor is swallowed at one time and quickly. In ordinary drinking consciousness is lost, and with it the power to drink more, before the proportion of alcohol in the circulation becomes fatal.

ARTICLE II.

TREPHINING FOR DEPRESSED FRACTURE IN VERTEX OF SKULL.

BY PARKER SYMS, M. D.,
House Surgeon, Bellevue Hospital.

A laborer, aged thirty-six, was brought to one of my wards on the afternoon of November 1, 1882, suffering from a compound depressed fracture of the skull.

He stated that a few hours before his admission to the hospital he had been struck on the top of the head by a stone.

His pupils were equal in size, rather dilated, and both responded to the action of light. His intellect was good, and he showed no symptoms of cerebral compression, except a slow, full pulse (between fifty and sixty), and slight paresis of both lower extremities.

Examination showed a not very large scalp wound in the vertex, almost directly in the median line.

On enlarging this wound, a small piece of the outer table of the skull was found to be depressed.

It was decided to trephine and elevate the depressed bone.

The patient was etherized, and the scalp laid further back by making crucial incisions.

When the bone was brought more clearly to view, I found that the fracture through the outer table was limited to a small fragment, about half an inch in length and a quarter of an inch in width. All of this was considerably depressed.

This depressed fragment was directly over the superior longitudinal sinus, its long diameter corresponding to the transverse diameter of the skull.

Using a small trephine, a button of bone was removed from the skull, just to the left of the fragment. The fragment was very easily dislodged with an elevator. By using a probe, it was found that the inner table was fractured in all directions.

In order to remove the loose pieces without injuring the dura, I cut away the margin of the opening I had already made, with a pair of rongeur forceps. I removed at least a dozen pieces of bone, which had been fractured off from the inner table and lodged between the bone and dura mater.

To remove all of these, it was necessary to enlarge the opening, making it at least two inches in diameter.

After removing all the loose fragments of bone, I smoothed off the edges of the opening and packed the wound with picked lint soaked in carbolized oil.

By the third day the wound had begun to granulate from the bottom. It went on, without complication, to a complete cure.

The patient slowly recovered from his paresis, and now has perfect use of his limbs.

This case seems to me to be of special interest, as showing the necessity of trephining in depressed fracture of the vertex, even though there be no urgent symptoms; for any one of these pieces, fractured from the inner table, would probably have caused a fatal meningitis, had I not removed them.

ARTICLE III.

THE GERM THEORY OF DENTAL CARIES.

BY DR. C. T. STOCKWELL, CONN.

Read before the Brooklyn Dental Society, January 8, 1883.

REVISED FOR THE INDEPENDENT PRACTITIONER.

I have thought that, perhaps, I could in no better way repay you for your cordial and greatly appreciated invitation to be present on this occasion, than by briefly considering some of the objections that have been raised against the germ theory as applied to the etiology of dental caries; or, perhaps I should say, some of the questions that have been propounded by those who have assumed the negative position since the first reading of the paper which was deemed worthy your attention and discussion at your last meeting.

And first, allow me to say that whatever our scientific men may finally demonstrate as the cause of dental caries, Prof. Mayr has, in my humble opinion, made it forever impossible to consider the action of acids upon the teeth as anything more than accidental. It is not the first step in true caries any more than a congenital defect, simple fracture, imperfect development, or any other favorable predisposing condition. The action of acids should be classed with these, and with these alone. Until something else takes place, caries proper cannot be said to have begun. Acids can and do result in the wasting away or

gradual destruction of teeth, in rare cases, by the process of erosion, but that is a very different thing from caries. In fact, it has nothing in common with it in either its incipient or advanced stages. Caries does not begin until some portion of the organic structure of the tooth is attacked, and then its progress is commensurate with the destruction of the organic tissue. Disease of a tooth is disease of the organic, vitalized tissue, and that alone. In-organic material diseased? Think of it for a moment. What is the nature of the disorder common to lime-salts? What is its name? Tissue composed largely of lime-salts may, it is true, become diseased, but it is that portion called organic, be it large or small, that is subject to that condition. Thus we claim that the destruction of the organic precedes the breaking down of the lime-salts in dental caries. Read carefully the report of Prof. Mayr's analysis of decayed tooth substance, in the January number of the *New England Journal*, and see if the decay can be accounted for upon the basis of chemical action.

That the destruction of the organic part of the teeth precedes the breaking down of their lime-salts is, I think, clearly established by recent investigation. Admitting this statement to be true, the question at once arises as to the nature and character of the active agent. I know of but two hypotheses that have been set forth thus far—the inflammation and the germ theories. You are all, doubtless, much more familiar with the doctrine of that eminent school of gentlemen across the river than I am, but it seems to me to be hardly less satisfactory than the old acid theory. It is, indeed, a single step away from it, but nevertheless they seem to be holding on to their old acid friend with one hand, while they reach out the other, endeavoring to find something else to yoke up with it, to account for that phenomenon termed dental caries. For the discoveries of these gentlemen regarding the structural organization of the teeth, they deserve the gratitude of the entire dental world; but I must regard the failure of the inflammation theory to account for the decay of dead teeth and ivory teeth inserted in artificial dentures, as fatal to that system. In fact, one of these gentlemen, not long since, when asked to account for this fact, finally admitted that in dead teeth germs very likely were the active agents.

And this brings me, after so long a preamble, to some of the objections raised to the germ theory.

The first question is suggested by the foregoing sentence. "How

can the germ theory be applied to dead teeth any more satisfactorily than the inflammation theory? Is not the organic matter already dead?" True, as regards a large mass of the fibrils, or the reticular bioplaxson structure; but there remains the devitalized protoplasmic substance of the fibrils, and the connective tissue that holds in position the granules of lime-salt, all of which form legitimate pabulum for bacterial organisms. These, being chiefly deprived of their vital resisting power, fall an easier prey to the attacking enemy.

This harmonizes with the observation that dead teeth decay more rapidly than live teeth, especially when the outside enemy is not excluded by a filling that hermetically seals the cavity.

"But," it is said, "how strange it is that these organisms should chew up teeth when they have so much in the mouth besides to live on!"

In answer, let me say that it may seem more strange that coral should be "chewed up" by a similar organism, when the proportion of organic matter in coral is only about one-tenth of one per cent.

In Germany a cement is made and used for various purposes, in which milk curd is an ingredient, the proportion being about ninety per cent. of lime to ten per cent. of this organic curd. The only trouble in its practical use is said to be the fact that worms, veritable, visible worms, destroy it by eating into it. Its structure being destroyed, it is reduced to the granular state and falls to pieces. If visible worms destroy a substance whose organic proportion is only ten per cent., who shall say that microscopical organisms may not successfully attack a structure as dense even as enamel, much more exposed dentine? And right here let me say that the books are, very possibly, in error regarding the proportions of organic and in-organic matter of the teeth. Not long since it occurred to me that the analysis of tooth substance, as given us by the books, is made with the teeth in a dry state. To determine the accuracy of these statements, I suggested to Prof. Mayr that some experiments be made to ascertain the proportions of water in tooth substance. Some work has been done in that direction, but as it is not yet completed I can only give you the approximate results.

Take an average human tooth, in a normal condition, directly from the mouth, and the analysis of dentine, taking the water into account, would show about the following proportions: Lime-salts, forty per cent.; water, forty per cent., and organic material, twenty per cent.

While this statement can be relied upon as only approximately accurate, it must be admitted that, in our consideration of the agents at work in the accomplishment of the destruction of teeth, the natural amount of water, in the constitution of these organs, must be taken into account.

Water, taken alone, can hardly be said to be organic; but when it forms a constituent part of tissue, it is, in a material sense, organic.

If the relative proportions of lime-salts to the organic are, say, forty per cent. of lime-salt to sixty per cent. of organic material, instead of seventy-two per cent. of lime-salt to twenty-eight per cent. of organic, the teeth may be more easily "chewed up" than may have been supposed.

But this view of the case is by no means necessary to the disposal of the objection. The real answer may be stated somewhat as follows: Bacterial organisms, it is true, are present in all parts of the mouth, but they successfully attack the teeth because they are the weakest in resisting force. The organic portion of tooth structure is circumscribed. The circulation is, compared with the mucous membrane, much less and much slower, necessarily. In this fact lies the cause of a lesser vitality. The vascular tissues possess a greater resisting power because of their vascularity. By means and because of this greater circulation, the mucous membrane is enabled to overcome and even to absorb these attacking organisms. Arrest the circulation, and putrefactive processes are at once set up. Systemic disease often first expresses itself in a disturbed condition of the teeth. In speaking of this matter not long since, a medical gentleman remarked that "his teeth were his health thermometers," as they first indicated any slight constitutional disturbance.

Another question is the following: "If the germ theory is correct, why do not teeth of skeletons decay and crumble to atoms sooner?"

I might, with far more reason, ask why it is that the fibrils of the teeth are, alone, so disastrously affected by acids. The use of acid fruits, food substances and fluids has, to my knowledge, never been known to produce such direful results upon the mucous membrane of the mouth and stomach as, it is claimed, is the result when such acids come in contact with the fibrils of the teeth. Extracted teeth and the teeth of skeletons do not decay, because, first, the fibrils and connective tissue become so dessicated as to render them unsuitable for the normal development of germs; secondly, the temperature is below the standard necessary for their development.

Dead teeth in the mouth do decay rapidly, but there they have the important favoring conditions of temperature and moisture.

The question is again asked, "why is it that any stray germs left in the structure of the teeth beyond the line of excavation, and consequently sealed up in the tooth by the filling, do not multiply indefinitely and bring about an early renewal of decay?"

Our friend, Dr. Clark, can best answer this question. But that there is danger of this very thing occurring in cases where no antiseptic agent is used, or where the filling itself is not antiseptic, I am quite confident.

It may be said, however, that the life of these organisms is relatively very short, and that in cases where the supply from without is cut off by a filling that hermetically seals the cavity, the enclosed organisms soon die or are overcome, and in many cases even are absorbed by the interior vital forces which reside in the protoplasmic fibrils.

Very possibly, also, the matter of a non-supply of oxygen might come in here as a potent question to be considered, were we to attempt to discuss principles and processes. This question is one of no little practical importance and needs to be studied most carefully.

Our good friend, Dr. Atkinson, possibly builded better than he knew, when, some years since, he remarked that we should invariably bathe a cavity with carbolic acid just previous to filling, for "carbolic acid seems to be a friend to the teeth." Certainly, for the purpose indicated, few will deny that carbolic acid is "a friend to the teeth;" but just how carbolic acid performs this friendly act I have always been at a loss to explain, until the view presented itself to my mind that germs were an active agent in dental caries.

This whole subject opens out a wonderful field for observation, discussion, and patient, careful, scientific research. I have spent months, I might say years, in the endeavor to learn something of the great questions involved in this field of investigation, but it is no assumption of feigned modesty when the confession is freely made that the threshold is scarcely passed. I can only assert a willingness to learn, and, being no scientist myself, I can only rely upon such investigations of others as are open to all who choose to avail themselves of them.

Just before I left home, the *Ohio State Journal*, containing Dr. Watts' labored article in defence of the acid theory of caries, came to hand. I shall attempt no reply here. In fact, none is needed. I will

only say that if, in an article of nineteen and one-half pages, confessedly the longest article he ever wrote, nothing better can be brought forward by its author in defence of his pet theory than sallies of witticisms, attempted ridicule, and the most unfair misconstruction of isolated sentences, then the germ theorists have nothing to fear from that quarter. His sole conclusion is a Scotch verdict—not proven. Not proven! when Drs. Underwood and Milles uniformly find bacteria present, and when Dr. W. D. Miller, himself not an advocate of the germ theory, says that he has nearly one thousand specimens, in every one of which they are present—specimens which have been examined by the very best authorities in Germany, who unanimously pronounce them bacteria? In the name of conscience, then, what testimony is conclusive?

In closing, I wish to reiterate two simple points that appear as the result of recent investigation. First, that careful chemical experiments show, most conclusively, that the histological structure of a tooth is destroyed before there is any loss of the inorganic material. That, at the border line, where the real fight is being carried on, the lime-salts are present in normal proportions; consequently, there can have been no solution of lime-salts. It shows that the structure is broken down, as the first step in caries. Secondly, microscopical investigations, those which I believe to be most reliable, and which, to my knowledge, remain unchallenged, show the uniform presence of micro-organisms in the disintegrated masses at the border line of decayed and healthy tissue, and often, if not always, that they are found to a greater or less extent occupying the dentinal tubuli in advance of the breaking down of the structure at the border line. Numerous sections show them present in the tubuli at a depth of from one to two millimeters beyond what, to the eye, would appear to be the healthy line.

This much, it would seem, these investigations fully establish. But even granting all this, I am aware that many will contend that organisms are not proven to be the agent that destroys the organic structure.

Right here we leave what seems to me to be the absolute, and, as far as present investigations are concerned, have to content ourselves with the relative. So far as I am personally concerned, just how, or just why, a careful weighing of the relative has resulted in a conviction that germs are the agents that cause the destruction of the organic tissue, I will not weary you by attempting to describe. It

is a matter that each one must investigate for himself. If anything that I have said should prove a further incentive to that original investigation which was so ably urged before you, not long since, by your secretary, Dr. Johnston, I shall have gained my full object.

ARTICLE IV.

WOUNDS OF EYE-BALL.

BY PETER A. CALLAN, M. D.

CASE I. A. W., aged thirty-eight, private watchman, about one month ago while looking up toward the upper story of a house to see where some fallen glass had come from, was struck by a piece of window glass in the right eye. Patient came to the New York Eye and Ear Infirmary twenty-four hours after the accident. I found the following: right eye, incised wound one-half an inch in length beginning in cornea downward and outward and extending into sclerotic about an eighth of an inch; iris prolapsed at the limitus cornea, lens fully cataractous, reaction very slight. Put patient to bed and used ice-cold compresses for two days. At the expiration of that time put patient under ether and made an iridectomy at the wound, by enlarging along the line of the limitus, the original wound; removed enough iris tissue to prevent another prolapse; eye bandaged and patient kept on his back for three days. At the expiration of that time found wound healed; no reaction, no pain; patient discharged. He presents himself once a week, and the eye in no way impedes his working. At some future time shall operate for the removal of the cataract.

CASE II. Eva M. S., aged eleven, while running along the sidewalk two months ago with a milk pitcher in her hand, slipped and fell forward, breaking the pitcher and wounding her left eye. Patient was taken to one of our large hospitals and kept for over a month. When discharged she presented herself at the New York Eye and Ear Infirmary. Examination showed that the left upper lid had been incised by the broken pitcher, and on opening the lids and looking at the eye there were seen several prolapses of the iris extending over the upper half of the cornea and some at the upper limitus, with cicatrices in the region of the ciliary body. The eye was painful; lens cataractous and light perception not good. Under the circumstances enucleation of the

eye-ball was advised to prevent further sympathetic inflammation of fellow eye. The parents were expecting it, inasmuch as a grandparent had lost an eye by injury and subsequently the fellow eye had become affected through sympathetic inflammation. Enucleation was performed, and patient now wears an artificial eye.

CASE III. J. W., aged twenty-three, while getting off a street car, about the last week in November, slipped and fell, and one of the ribs of an umbrella which he was carrying entered the left orbital cavity through the lower lid, not directly touching the eye-ball as far as I could make out. Seven days after the injury he came to the infirmary with well-marked orbital cellulitis, the eye-ball being pressed down and outward. Cornea slightly hazy, considerable muco-purulent secretion from the conjunctival surfaces. Patient's general health was very poor. He objected to entering the infirmary just then, but promised to return in a few days. Returned in three days; the lids were, possibly, not so much swollen, but the secretion was worse and a well-marked ulcer appeared on the upper third of the cornea. Patient was put to bed and constant applications of boracic water, the daily use of a solution of nitrate of silver (five or ten grains, as the indications called for it), a solution of sulphate of atropia, gr. ij. three times daily to the eye, and a generous diet with alcoholic stimulants given to the patient. The entire cornea sloughed away, leaving the iris exposed. Patient began to suffer intense pain, which it took large doses of opium to partially alleviate. Pain so severe, and eye lost, it was decided to remove the eye, which my assistant, Dr. Agramonte, did in a very skillful manner. About the tenth day a secondary hemorrhage took place, which after much difficulty was stopped by liq. ferri. persulph. and compression. The orbital inflammation gradually subsided, and after about one month's treatment in the Infirmary he was discharged.

When seen soon after the injury all such patients should be put to bed, bowels opened, diet regulated, and to the affected eye, ice-cold lotions to prevent too great inflammation, which usually begins within twenty-four hours after the injury. The shock is sometimes very marked following an injury to the eye. If there is any foreign body to be seen in or near the wound it can be removed if not too great disturbance of the eye is necessary. A prolapsed iris may be replaced by the use of eserine locally and gentle manipulation. If this does not do it—and in the majority of cases it will not succeed—let it alone and

at the expiration of three or four days it can be cut off and a bandage applied. We strongly object to the indiscriminate use of sulphate of atropia to an injured eye if the case is seen very soon after the accident. In case there is an incised wound of cornea with or without a prolapse the chances are that the lens capsule may be more or less torn, and some lens matter has become opaque from the aqueous humor penetrating through the torn capsule to the lens. When sulphate of atropia is used the lens is flattened and the change in shape disturbs the wound in capsule and permits more aqueous humor to reach the lens, rendering it more opaque; the lens swells and makes the case more complicated and serious. A surgeon assumes a great responsibility who has charge of a case where one eye has been lost through injury. If the foreign body—a piece of iron, brass, percussion-cap or any hard non-absorbable material—has penetrated into the eye and remains within, there is danger sooner or later that the fellow eye will become sympathetically affected. Or where an eye has been injured in such a manner that there is extensive laceration in and about the ciliary body, or in fact any portion of the eye-ball wounded in such a way that in healing the ciliary nerves are included in the cicatrix then there is danger to be feared of sympathetic inflammation of the fellow eye.

Original Translations and Abstracts.

CHRONIC DIPHTHERIA OF THE PHARYNX.

Notwithstanding the frequency of diphtheritic affections at the present day, we rarely meet with cases where the disease is located in the lower part of the pharynx.

Indeed we rather see that many cases, which do not belong to this category, receive the name diphtheritis in spite of the fact we have long since learned—that all is not diphtheria that “has a whitish look.”

Extensive follicular inflammation and superficial catarrhal ulcers, such as occur with the exanthems, are often confounded with diphtheria. On the other hand too little attention is paid to those forms in which the upper parts of the pharyngeal space and that portion covered by the soft palate, as well as the posterior surface of the pharynx itself, are involved in the diphtheritic process, either when the disease is seated solely in this part, leaving the lower portions perfectly free,

or where at the beginning of the general propagation only the lower and visible parts are involved.

But when the disease attracts attention by extending to the middle ear, the discovery is made in all probability that the true condition was mistaken for gastric fever, or some rheumatic affection.

The abnormal course which diphtheria usually runs in the upper part of the pharynx has an obvious reason therefor. First, the removal and separation of the diphtheritic membrane are made difficult both on account of the greater friction and contact of the parts and from want of expelling power in the muscles during the act of deglutition; and, secondly, artificial separation by means of gargling, instrumentation, etc., is by no means an easy matter.

Then again the long time which the exudation containing the diphtheritic poison remains upon, and its continual contact with, the tissues keep up the infective process, so that the disease extends to parts that previously were exempt. Just here are the dangers that the disease will become chronic, that repair will not ensue after separation of the membrane and that the inflammation will extend to other localities. The directions in which it extends are many. What is oftenest witnessed in the course of the malady, is blenorrhœa with putrid separation of the membrane, which is then the result of extension from the pharynx into the nose where a process of suppuration ensues, lasting often for weeks.

We see it occur as a sequela of scarlatina, leading quite frequently to other morbid conditions; thus, for instance, the ear, previously free from disease, will become implicated in the process. This condition seldom goes unrecognized, since the large masses of exudation that are thrown off are noticed as much by patient as physician.

But far less often described or observed is a second form of chronic diphtheria—the subject of this article—which I have seen in about twelve cases up to the present date, and of whose precise etiology I have but recently been fully convinced.

Among a large number of cases of pharyngeal ulceration which I treated I found ulcers often of large extent, which were either due to syphilis or had an undoubted tuberculous origin. Several resembled syphilitic ulcers but offered no resemblance to them in point of significance and importance.

Here was seen a rather deep lesion having a mottled yellowish floor, and surrounded by swollen and reddened mucous membrane. Under

certain circumstances the ulcer extended rapidly and led to severe constitutional disturbances.

In a small number of cases the lesion was only discoverable by rhinoscopy, while the condition had previously been unrecognized and unsuspected because the lower border of the ulcers was not visible below the soft palate. Only intercurrent disease of the ear or pains in the eye brought the patients under my care. Pains in the eye were common to nearly every case. The patients described them as agonizing and intense, starting from the eyes and darting back over one side of the head.

This pain was present in a marked degree when the ulcers reached the level of the *basis cranii*. The ulcerative process did not usually remain confined to the upper portion of the pharynx, but often extended despite all treatment so as soon to appear below the soft palate, indeed in a few cases to involve the commencement of the œsophagus, so that the whole posterior part of the pharynx from the *basis cranii* to the lower half of the epiglottis was transferred into one immense ulcer. At the same time the lesion had extended laterally to no inconsiderable degree. In these cases the posterior surface of the soft palate was always involved so that certain alterations would be recognized from the side of the mouth, such as redness, sometimes lividity and, on touch, a peculiar brittleness and rigidity of the tissue, especially at the edges, so that the gentlest traction broke it off in strips, thus making the use of Voltolini's palate-knife impossible.

In two of the cases observed by me where fissures occurred near the uvula from tearing the membrane, the wound soon became transformed into an ulcer, leaving a thick cicatrix.

The sufferings of the patients were intense, especially the dysphagia and local pain. Then occurred great depression of the forces and marked emaciation, but without any febrile phenomena. Only in a single case was there fever. Here there were diphtheritic crusts, of recent origin, about an ulcer in the upper part of the pharynx, where the membrane was still exfoliating or could be easily removed. This, however, was the very case that gave me an insight into the whole disease.

There was a remarkable resemblance between these and syphilitic or tubercular ulcers, so much so that some of my colleagues had adopted, in a few cases, an anti-syphilitic or an anti-tuberculous plan

of treatment. In one case I myself commenced the former, with, of course, wholly negative results.

The first cases, like the one above described, led me to the correct etiology; and then I was enabled to prove that the patients had either previously suffered from recognized diphtheria, or else a subsequent careful study of the history of the case showed that the existence of diphtheritis was highly probable.

The diphtheritic process upon the tonsils was often, apparently, limited in extent, normal in its course, and non-malignant in character, so that the physician was in no wise prepared for the subsequent morbid developments.

One point was common to all, viz., the ulceration began in the upper part of the pharynx. The explanation of this is by no means difficult, if one pictures to one's self the mode of origin of these ulcers, described at the beginning of this article.

At this point we often meet with disturbances that prevent a normal crisis.

How is it, then, that the disease takes on so destructive a character? The chief *role* in the causation of this is played by the previous constitutional condition, so that we may thus formulate: *should diphtheria attack an individual who is the subject of hereditary syphilis scrofulosis or tuberculosis, even though the latter be only in its incipency, and should the process extend from the upper part of the pharynx, or simultaneously develop, from before backward, then we find a marked predisposition to the ulcerating form of chronic diphtheritis.* This was verified in all of our cases but one. In this one case, that of a married army officer, the history elicited no evidence of a syphilitic taint, nor could an hereditary tendency to tuberculosis be made out.

In this patient, who had suffered from a tonsillar diphtheritis that, apparently, left no evil results, an ulcer developed, whose seat was behind the soft palate on the right side, and which continuously extended downward, appearing under the uvula. It resisted treatment most obstinately. But as the patient was out in all kinds of weather, and had to shout out his commands, I take this to be the reason for the formation of an ulcer.

Concerning the *treatment*, we must distinguish two stages in the affection.

So long as the floor of the ulcer appears fatty, and the adjacent parts are markedly infiltrated, a large amount of exudation co-existing

caustics and astringents are positively contraindicated. Powerful antiseptics are to be employed at this period; and the virus that undoubtedly lurks in these ulcers must either be destroyed, or its further influence must be checked. Hence, the secretions and exfoliated masses must be carefully and immediately removed.

The nasal and pharyngeal douche, or spray, can not be used too often.

At times the ulcers must be washed out with sponges or by means of the probang, unless the patient objects to it on the ground that it gives too great pain.

Among the applications is a strong solution of carbolic acid (5 to 8 per cent.) and pulverized iodoform and boracic acid. Iodoform is of special service; it can be blown into the posterior part of the pharynx through the mouth or nose.

Carbolic acid, in the strength above described, is, of course, only for local application and by means of the probang. Weaker solutions may be applied by means of Trautmann's, Von Troeltsch's, or my own atomizer.

No good results followed the use of solutions of chlorate of potassa.

When diphtheria is present, iodoform is to be unhesitatingly employed. Strong solutions of carbolic acid are not well borne in these cases, but weak solutions are permissible.

As soon as the fatty floor of the ulcer begins to loosen up, and when granulations begin to grow at various points, antiseptics are to be discarded (except as additions to the spray) and caustics are to be employed.

Every part of the ulcer is to be rubbed with the caustic, and the application can at times be carried up into the naso-pharyngeal space, if rhinoscopy is easy of performance. Strong solutions of silver nitrate may be applied by means of the atomizer—Von Troeltsch's preferably.

Galvano-cautery likewise proved of considerable service. This may sometimes be employed very easily in the disease, the course of which is then materially shortened. Cautery with white-hot iron calls forth no reaction. We might expect that the action of the ferment-poison would be annulled by this treatment, and hence, in the earlier stages; its action would be most useful. No difficulty attends this mode of treatment so long as the ulcer lies freely exposed to view.

Antiseptics alone will not serve as a cure of the disease in question.

If syphilis is suspected, postpone your mercury and iodine preparations till later on, for the patient is very weak and anæmic.

The ulcers heal from topical treatment. After their cure, constitutional remedies are in order.—*Dr. Walb, in the Ber. Klin. Woch., Dec. 11, 1882.*

ELECTRICAL PHENOMENA IN THE MOUTH.

BY DR. WILLOUGHBY D. MILLER, OF BERLIN.

Quite a number of communications have lately been published on electrical phenomena in the mouth, as well as on the deleterious changes produced by them on filled and sound teeth, which are greatly in need of further elucidation. To solve the questions put forth in this connection, we need rational and exact observations and experiments, and cannot be satisfied, as heretofore, through striving to arrive at the desired information by means of *a priori* assumptions and theories.

To begin with the question whether, under physiological circumstances, any electric action can exist between the various portions of the living tooth itself, *i.e.*, between the enamel and the dentine, we must accept it as a strange fact that this very question seems to have attracted but little attention among the champions of the electric theory of caries.

If such an action did exist, it would be capable of destroying the teeth by local currents, and would afford an explanation of the origin of caries. But nothing of this kind has hitherto been observed, and we are not able to see at present how this question could be solved experimentally.

Consequently, another question comes to the front. What happens in electric phenomena when we connect a living tooth with a metallic filling? It has been proclaimed that "every tooth filled with metal forms a galvanic battery, which acts as soon as the surrounding fluids have an acid reaction."

But this supposition has not been verified by experimental facts. Even some of its champions have publicly acknowledged that, up to the present, nobody has been able to detect this galvanic action, much less to measure it.

Notwithstanding this, I claim that we can accept it as truth that electric currents do exist in the cavity of the mouth as soon as it contains teeth filled with metal. But these currents do not exist in such

a manner, between the filling and the substance of the tooth, that the latter could be compared with one of the cells of a galvanic battery, but the electric phenomena which really take place in the mouth owe their existence to the dissimilarity of the nature of the substance of the metallic filling.

On the outside of every filling, even one of pure gold, electric currents will be generated if the filling is not of the same density throughout—a condition which will always exist in practice. These currents will flow between the dense and the less dense portions. But as by no means can it be said that all currents flow toward the edge of the filling, no harm can result to the tooth.

When two fillings of different materials occupy the same tooth, or come in contact in teeth which stand beside each other, a current is generated, flowing from the more easily oxydized metal (electro-positive) through the fluids of the mouth and teeth toward the less oxydizable metal (electro-negative), and which, while exercising a certain electric activity on the fluids of the oral cavity and on the tissues, is able to produce deleterious sequences. The current may liberate acids on the surface of the electro-positive metal, which can attack the tooth at the edge of the filling. But the action seems to stop as soon as the surface of the positive pole has been oxydized; in short, we have not yet found in practice that this process does any harm to the teeth.

When clasps of a baser metal are connected with a gold plate, after its insertion a weak current will be generated in the mouth. It may liberate acids about the clasps, and these acids, coming in contact with a tooth, might cause considerable erosion in the course of time. This action can be explained by the following experiment: I connected a bicuspid, by means of a platinum wire wound around its neck, with the positive pole of a Siemens battery of three cells, and another bicuspid in a similar manner to the negative pole of the same battery.

The teeth were immersed in a U-shaped tube, to a depth of two centimetres with a 0.75 per cent. solution of chloride of sodium.* The circuit contained for observation a galvanometer, whose multiplicator of 1,000 turns possessed a power of 200 Siemens ohms. On the closing of the circuit occurred a variation of 31 degrees; after being closed for two hours, this variation had decreased 8 degrees. When

*A solution of common salt can best be substituted for the animal fluids. It is indifferent to the organic tissues and has been tested in the experiments on muscle and nerve tissues in the laboratories, under the name of "physiological salt solution."

the teeth were taken from the fluid the positive tooth presented a furrow around it, at the place where the wire had surrounded it, of $\frac{1}{2}$ mm. in depth, proving conclusively that the substance of the tooth had been destroyed by the acids liberated at the positive pole; on the negative tooth no change could be detected.

Consequently, electric currents can be generated in the mouth:

1. When a metal filling does not possess the same density throughout.
2. When two fillings of different metals come in contact.
3. When a plate or filling is composed of several different kinds of metal.

Another question in this connection concerns the conductivity of the tooth substance for electric currents.

It is well known that the different ingredients which compose the dentine are in themselves non-conductors of electricity, but I experimented to prove the dead-tooth substance a non-conductor in the following manner. A section of dentine of 0.03 mm. thickness was enclosed in a circuit composed of three Siemens cells, and the multiplier rolls of a mirror galvanometer of 16,000 turns, with a resistance of 5,000 Siemens ohms. After the circuit was closed, I could not detect the slightest variation of the magnet mirror. This section of dentine was inclosed between the ends of two wires of 1.9 mm. diameter, and subjected to a pressure of about 3 grammes per square mm.

This experiment was varied, and three similar pieces were inclosed in the circuit, in such a manner that the connecting surfaces between the ends of the wire and the substance of the tooth were enlarged threefold. The variation always remained stationary, at zero: *i.e.*, the resistance was infinitely great.

If we connect the one pole of an electric battery of four Siemens' cells with the metallic filling of a tooth, and the other pole to a second filling, or to the gum tissue, we can plainly see that the circuit is closed. This fact has given rise to the false theory that dentine is a good conductor; but the current to be detected in this way is caused only by the fluids which are contained in the dental tubuli, the pulp-cavity and the root.

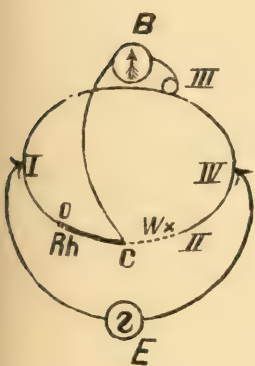
In the same manner the porous cylinder of a galvanic cell, in itself a non-conductor, becomes a good conductor as soon as moistened with the battery solution.

If, as thus claimed, the ability to conduct an electric current was dependent only on the fluids contained in the pores of the living tooth, it follows that a section of dead dentine moistened with a certain fluid would offer less resistance than a section of enamel moistened with the same, as dentine is more porous than enamel; further, a section of dentine crossing the dental tubuli at right angles would offer less resistance than one that runs parallel to them; and, lastly, the resistance would increase with the resistance of the fluid used for moistening the section.

These propositions were fully demonstrated by the following experiment:

The cross-section whose resistance was to be determined was held between the ends of two amalgamated zinc wires of 1.9 mm. diameter, pressed together by an even pressure of about 2 grammes to the square mm. The cross-section of the tooth, of a thickness of 0.04 mm., was moistened in its centre with concentrated zinc sulphate.

The arrangement of the apparatus of the Wheatstone bridge combination is as seen in the figure.



E. Two Siemens' closed cells.

B. A mirror galvanometer, after Wiedeman, of 16,000 turns, and a resistance of 5,000 Siemens' ohms, with a periodized magnet ring, after E. Du Bois-Raimond.*

Rh. The Rheostat.

W. The resistance to be measured.

0, *I.*, *II.*, *III.*, *IV.*, Connections with a round compensator, after Du Bois-Raimond,† with the modifications of Christiani.‡

A long series of experiments gave on an average, at the beginning, a resistance of 1,700 Siemens' ohms. for a section cut at right angles to the dental tubuli, and having a thickness of 0.04 mm. For another, of equal size, cut parallel, or nearly so, to the dental tubuli, the resistance was, in the beginning, about 8,050 Siemens' ohms. With progressing dryness, these resistances very quickly increased indefinitely.

When the same sections were moistened with water, a much

*Monthly report of the Royal Academy of Science at Berlin, 1869; p. 807, ff.

†Du Bois-Raimond's "Archives de la Physiologie," 1871; p. 608.

‡Poggdff. Annal. Ergänzbd. VII; S. 573; Annmkg.

stronger resistance was found, which was, however, not measured, on account of the strong polarization.

That the resistance of the enamel is much greater than that of the dentine, can be demonstrated by the following experiment:

Connect one end of a battery of four Siemens' cells with the gum, and the other end with the enamel of a tooth, and not the slightest sensation of an electric current will be perceptible; but if the second end is connected to the dentine, or to a metallic filling in contact with the dentine, a very disagreeable sensation will be perceptible, even if the battery be composed of but one element.

The experiments described herein have been made under the guidance of Prof. Christiani, in the laboratory of Prof. E. Du Bois-Raimond, and I take great pleasure in expressing my obligations to those two gentlemen.

CEREBRAL TUMOR.

Prof. Hirschberg, the celebrated neurologist, publishes in the *Neurologisches Centralblatt* of December 15 a case of tuberculous tumor in the pons and in the choroid of both eyes. The patient, a little boy three years old, was very intelligent and of healthy parentage. Headache intense; vision normal; urine free from albumen and sugar. There were no motor disturbances in the trunk or limbs; but in the eyes was observed marked paresis of the left abducens and right rectus internus, the left rectus internus being only slightly affected. Vertical movements of the eyeball could be performed perfectly.

Wernecke states that the centre for lateral motion of the eyes lies in the lower portion of the pons*; it is bilateral, the left centre controlling lateral movements of *both* eyes to the *left*, the right governing similarly the right lateral motion of both. In this case the left centre was involved, for, as Gudden has shown, the two abducens do not decussate. The process was only commencing in the right centre.

The ophthalmoscope at once decided the question as to the nature of the tumor. Besides recognition of its tubercular character, a classical "choked disc" of cerebral neoplasia was seen on both sides; the optic nerve was deep red in color and surrounded by a reddish-gray coating about one twenty-fifth of an inch thick. The veins were enormously dilated. Soon after headache increased and the patient became cross

* Archiv. f. Psych., 1877, and Centralblatt f. A., 1877, p. 189.

and somewhat somnolent. In a week there was marked weakness of the *right* lower limb, which was in keeping with the diagnosis, viz., that the *left* centre was mainly involved. Death occurred three months later, with profuse expectoration and incessant cough. Hirschberg states in conclusion that the disturbances of lateral movements were here of the highest diagnostic importance.

ON THE CURE OF EPILEPSY BY LIGATURE OF THE VERTEBRAL ARTERIES.—Dr. Alexander recounts twenty-two cases of epilepsy where ligature of the vertebral arteries was practiced. Three patients remained unattacked for a year, nine were but recently operated on—these, however, have had no recurrence as yet; eight show decided improvement; and one died in a convulsion, two months subsequent to the ligature.

THE MUSE IN MEDICINE.—In the January number of the *Southern Practitioner* is a poem of twenty-six stanzas entitled "What is Life?" by T. O. Summers, A. M., M. D., who is Professor of Phisiology and Clinical Surgery in the Medical Department of the University of Tennessee. We quote the following:

Oh, Savant, tell us, what is life,
With all its wondrous springs?
Is it the rush, and whirl, and strife,
Which living always brings?

Thou child, so pure and innocent,
What answer dost thou give?
Is life but days of pleasure spent?
Is it but this to live?

Oh, son of toil, what sayest thou?
Is life but earning bread,
With drops of sweat upon thy brow,
And rest upon thy bed?

Answer, red-handed son of war,
In life what dost thou see?
Naught but the cannon-riven air
And shouts of victory?

Within the darkness of the womb,
Life's forces are begun,
And in the silence of the tomb
Its feverish strife is done.

Selections.

LECTURE.—THE INFLUENCE OF CONSTITUTIONAL DIATHESIS ON THE DEVELOPMENT OF DISEASE GERMS.

Gentlemen: It seemed to be the general belief at one period, that it was but necessary for the microbe or morbid germ to enter the organism in order to become multiplied ad infinitum.

The presence of the parasitic germ and effraction of the tissues were regarded as the two conditions necessary, but always sufficient to determine infection and constitute the disease.

According to this accommodating theory, no matter what the constitutional condition of the individual, if the malignant charbon bac-teride (bacillus) comes in contact with any point where the epidermis is excoriated, malignant pustule will of necessity be developed.

Many observations serve to show that this opinion is not well founded. The organism, in many cases, does not permit the entrance of the virus into the system, and the morbid germ languishes and perishes on sterile ground. Proofs of this assertion are not wanting; of those bitten by a rabid dog, all do not contract hydrophobia; certain individuals escape diphtheria, measles, variola and scarlatina, when exposed to the infection. There are some who do not contract gonorrhœa or syphilis from persons who have communicated the disease to others. I have among my patients a young lady, twenty-three years of age, who has been vaccinated nineteen times ineffectually. Such subjects are said to be refractory vis-à-vis certain diseases.

On the other hand there are individuals who fall an easy prey to germs, septic or otherwise; if the infectious spores penetrate their tissues, disease is sure to follow. We have just mentioned malignant charbon; the flocks in the pastures of Normandy are hardly ever affected, while its ravages among animals in the neighboring provinces are well known. Finally, one or two successful vaccinations are generally considered sufficient; yet a physician in one of our hospitals contracted small-pox within less than a year after a successful inoculation.

It is evident that but a very slight change in the composition of the solids and fluids of the organism, is necessary to render the system refractory or not to the penetration of germs. What modifica-

tions do syphilis, variola, scarlatina, measles, and charbon, provoke in our tissues?

Chemistry cannot furnish a satisfactory reply; and yet, after a first attack, the organism has become improper for the nourishment a second time of the germs of these maladies, which attack but very exceptionally the same individual twice. There are no longer in the economy the same elements or the same quantity of these elements; the constituent principles are so altered that an organism, where certain germs formerly multiplied, no longer receives them.

A laboratory experience, reported by Duclaux in his remarkable work, demonstrates very strikingly the fragility of germs, their nutritive exigencies, and their extreme sensitiveness.

A culture liquid (*liquide de culture*) contains one-fifty-millionth part of zinc; one or two generations of aspergillus will completely absorb the metal, so as to render the existence of a new generation stunted or impossible. "In such a liquid a new planting, I was about to say a new inoculation, will remain without effect."

"If we add," continues M. Duclaux, "a sixteen-hundred-millionth part of nitrate of silver to the liquid of culture, vegetation is suddenly arrested. It will not even begin in a silver vase, although chemical investigation cannot demonstrate the presence of any part of the matter of the vase dissolved in the liquid of culture. If we suppose that the aspergillus were a human parasite, capable of living and undergoing development in the organism and invading it in all its parts, the quantity of nitrate of silver necessary to eradicate it from the body of a man weighing sixty kilograms would be forty milligrams. If it attacked only the blood, five milligrams would suffice to arrest the development of so sensitive an organism. It is true that other species may live where the aspergillus perishes. Each ferment has a special liquid which favors its development, whence the formula: "any one soil is not proper for all forms of culture; and a fertile spot is very soon worn out."

The passing or permanent modifications of the organism have then a direct influence on the evolution of the microbic disease. It is evident that certain conditions of the liquids, blood, lymph, etc., facilitate fermentations and cultures; and as the chemical composition of the liquid constituents of the organism vary from one malady to another, it may be advanced, that each constitutional disease, specific or

not, renders the organism more apt to contract certain other maladies.

In other terms, the morbid germs find in the liquids of an organism, affected by a constitutional diathesis, a soil either propitious, indifferent, or refractory to their development.

Prof. Bouchard makes a similar declaration in his recent lectures: "among the agents of infection, there are certain species which prosper in the human organism, no matter whether it be in a state of health or diseased. There are other germs which respect the human subject when in a condition of health, and do not find in the solids or liquids of the organism a soil favorable for their development except under certain morbid conditions, which have induced a deterioration of the economy, in cases where alteration of nutrition has provoked chemical changes in the solids or liquids."

Such an affirmation is perhaps too general and sweeping, but we will seek to determine the conditions of the organism favorable to the development of certain germs, and obnoxious to others.

The humors or liquids of rheumatic, gouty, and diabetic subjects, charged with uric acid, the urates, or sugar (to mention only recognized chemical products), are very favorable to the development of the microbe of furuncle and anthrax; so much so that the appearance of these local affections should cause the observer to suspect the existence of the arthritic diathesis. It has long been known that anthrax is one of the most common complications of diabetes; but its frequency in gouty and rheumatic subjects and in those suffering from maladies due to defective nutrition (*ralentissement de la nutrition*) has not attracted sufficient attention.

On the contrary, the humors of scrofulous patients are so improper for the development of the furuncle germ, that a case of anthrax in a subject presenting scrofulous manifestations is yet to be reported.

This remarkable antagonism merits confirmation, and furnishes a very interesting subject for study. It must be observed, however, that the infecundity of scrofulous blood as regards furuncle germs is not absolute. Recently we observed a young girl, evidently consumptive, who presented around one knee an eruption of twenty-five furuncles. It is true that both the father and mother of this patient were subject to rheumatic attacks, and she had herself, from time to time, suffered from erratic pains in the joints; so that this case does not form an exception to the general law we have laid down.

M. Bouchard furnishes an example of two other parasites which do not prosper in the human subject, except in individuals affected with certain constitutional diseases, and under the influence of certain well-determined morbid conditions. "The microsporon furfur of *ptyriasis versicolor* has a marked predilection for phthisical and arthritic patients." As regards the *oidium albicans*, it is not developed, as is well known, except in debilitated subjects; during infancy in athreptic children; in old age, in worn-out and feeble individuals, and at other periods of existence in patients worn out by a grave malady of long duration. Under such conditions the morbid product appears on surfaces bathed in acid mucous.

Veterinary medicine offers an analogous fact as regards scabies. Delafond and Bourguignon have demonstrated that healthy sheep, properly cared for, resist absolutely colonization by *acari scabiei*, while if these same sheep are poorly fed and become debilitated, they contract the disease very easily. If they are then again brought back to good condition, the disease disappears of itself. Could not we assimilate to these parasites those of gonorrhœa, described by Hallier in 1872, and later by Salisbury, Neisser, Bouchard, and Capitan? This disease would seem to be developed equally well in all subjects; but Ricord, when he gave his famous recipe for taking gonorrhœa, was perhaps wrong in accumulating all the external conditions which might aid in the development of the disease.

The condition of the individual about to be infected is of great consequence. Do we not observe cases where gonorrhœa first comes on with but slight cause, and, finding a fertile soil, becomes chronic and defies all the efforts of the physician? The flow may be arrested, but not completely disappear, and the patient is subject to a new attack on any change of diet, or after any form of excess.

Or, it is by no means an affair of chance, that certain individuals contract such grave and persistent forms of this disease; we are of opinion that the arthritic diathesis is the favorite soil for such luxuriant culture of infectious germs. We have observed many cases of interminable gonorrhœa, developed in individuals who presented all the signs of retarded or defective nutrition, and in such subjects exclusively. Attention to hygienic conditions, appropriate food, hydrotherapy and out-door exercise in the country, often alone sufficed to cure a gleet which had persisted for long periods, in spite of every form of injection and medication.

There is another microbe which has exactly the opposite tendency: I refer to the germ of tuberculosis, the existence of which appears to be fully demonstrated since Villemin proved the inoculability of the tuberculous granulation. This germ does not prosper or spread in the arthritic organism, while it invades and destroys with extreme energy the scrofulous subject. I had long been a unicist, believing in the identity of the scrofulous and tuberculous diathesis. I considered tubercle as forming the most advanced anatomical manifestation of the strumous diathesis, holding the same relation to scrofula as gumma to syphilis, or cancer to arthritism. But many objections to this view presented themselves, such as the coincidence of tuberculosis with cancer, the appearance, rare, it is true, of tuberculosis in subjects who had never presented the slightest trace of scrofula, and finally, the hereditary transmission of scrofula and the evident contagious nature of tuberculosis.

To-day I am of opinion that scrofula and tuberculosis are two distinct morbid conditions; the first due to some defect of nutrition, the second to parasitic invasion. Substituting for the notion of identity that of extreme affinity, the apparent contradictions between the results of clinical observation and those of experimentation, are almost entirely effaced.

It was formerly admitted that a certain degree of antagonism existed between malaria and tuberculosis; to-day opinions on the subject are divided. It is evident that there is some fault in the way researches on the subject have been hitherto conducted.

A malarial subject, being considered as a soil for the culture of germs, we should seek whether his organism is favorable or not to the proliferation of the tuberculous microbe; in other words, we should try to determine whether a subject exempt from other disease than malarial poisoning, resists better infection by the tuberculous germ, or becomes more easily its prey. Reciprocally, a tuberculous patient being taken as soil of culture, it will be necessary to determine, in a malarial region, what is his receptivity for the germ of malaria.

It may be, perhaps, at a future day possible to demonstrate: 1st. That soil already sown with paludism (malaria) is not proper for the development of the tuberculous granule, which would prove the correctness of Boudin's opinion. 2d. That on the contrary, the phthisical subject attacked by intermittent fever presents a graver form of the malady and a greater predisposition to pernicious attacks.

As we cannot actually sow and cultivate the microbe in the human subject, the field of experimentation on animals has been largely extended; it is however, necessary to properly choose soil, favorable or unfavorable, for the culture of the different morbid germs.

These different soils are furnished by the diverse species of animals which sometimes represent with more or less fidelity the principal diatheses of the human species. In order to study, for instance, the points relative to the microbe of gangrenous affections, neither the dog nor cat should be chosen, but the sheep or cow. To cultivate the tuberculous germ, there is no organism prepared by scrofula, but the monkey or calf should be taken in preference to the horse or pig.

Like individuals in a cachectic condition, who are almost without defence against most parasitic diseases, there are certain animals, rabbits, for instance, who receive and permit the development of all germs, from those of septicæmia to those of tuberculosis, as also the bacterides of malignant charbon. And just as there are certain individuals, who inhabit most unhealthy localities and are exposed to the most fatal epidemics without contracting any disease, even the most contagious, in like manner there are certain animals, the pig, for instance, who remain refractory to all forms of inoculation.—*Verneuil, Prof. of Surgery of the Paris Faculty, in the Med. and Surg. Reporter.*

AN EXPERIENCE WITH THE NEW ANÆSTHETIC—CHLOROFORM, ETHER AND ABSOLUTE ALCOHOL.

A young lady aged eighteen, whose lower teeth were so carious that only two out of the complete set were considered good enough to retain (the result of hereditary syphilis), was put under the influence of the above anæsthetic by her regular medical attendant, who has had great experience in its use, to give me the opportunity of excising the six incisors, extirpating the nerves and extracting the rest. The means adopted to administer it were very simple, the whole apparatus consisting of a thick felt cone five inches long, covered with oil-silk, with an opening to go over the mouth and nose and a hole at the apex to admit the air. Two drachms of the mixture were poured over the felt and applied gently to the face, and in two minutes and a half anæsthesia was complete. I excised the two incisors and drilled into the pulp-cavities, having fixed the mouth open with a Coleman's gag. The administration was continued, and I extirpated the nerves.

As there was every symptom of sickness, I did not proceed farther, and about half a pint of cream-colored vomit was thrown up. In about two minutes all was ready to proceed, so I extracted the teeth and made preparations for the restoration of consciousness. The pulse was quite steady and the hands and feet particularly warm, the respiration was regular, but no sign of sensibility presented itself. The face was slapped with a damp napkin and some liq. ammon. fort. applied to the nostrils. Five minutes elapsed and the nitrate of amyl was given in the usual way, with the effect of increasing the pulse and bringing a little more color to the face. Time went on and consciousness was as far off as ever.

A teaspoonful of brandy was put into the mouth, which induced vomiting. The ammonia was again applied to the nostrils with a slight sign of discomfort, as the head moved a little away from it. Having read that if mice were put under the influence of chloroform and were held up by their tails they would make attempts to bite, inversion was tried by tilting the operating-chair back until the head-rest touched the ground, without the least beneficial effect. Thirty minutes having elapsed and, beyond the prolonged insensibility, no unfavorable symptom presenting itself, we came to the conclusion that the patient was under the influence of the alcohol. By repeating the slapping and ammonia, which was now decidedly objected to, consciousness returned, and in forty minutes after the operation ceased she was walking about the room with a most unsteady gait, and complained of feeling dreadfully sleepy.

We induced her to have her cloak put on, and in a few minutes she left in her brougham with her friends.

I saw her three days after, when she said she did not suffer during the remainder of the day more than an attack of sickness, when she brought up a quantity of blood, which had evidently been swallowed, and a slight sense of drowsiness. The prolonged insensibility is quite unusual, but the happy freedom from the sickness which invariably follows the administration of chloroform is the rule, and in that, I think, favors the use of this anæsthetic.—*Henri Weiss, in British Journal of Dental Science.*

Remarks.—English surgeons are quite extensively using this mixture of chloroform, ether and alcohol as an anæsthetic, for what good reason we must confess our inability to perceive. Chloroform and ether

in their administration are each accompanied by a separate train of symptoms, and the effect of each upon some of the vital organs is quite distinct. Each is fraught with special danger to patients laboring under certain diatheses, but neither can act as an antidote to the other. Their combination, therefore, multiplies the chances for a fatal termination, without offering any compensating advantages in convenience to the operator. Even were this latter the case, it could not properly be taken into consideration. When an operation hazardous to human life is to be performed, there should be but one question asked—what is the method involving least risk to the patient? The mere convenience of the operator, the chance of any trivial nausea, the saving of a few moments of time, are not factors in the case.

If there be no heart lesions, no alcoholism and no state of extreme nervous irritability, chloroform vapor, properly diluted, may be as safe an anæsthetic as any, but its administration is, in the earlier stages, usually accompanied by hyperæsthesia and great excitement, due to the stimulating effects of the agent upon the sympathetic nerve system, and if the heart be weakened by disease its spasmodic struggles may result in paralysis of that organ.

Ether narcosis is seldom attended with the violent excitement stage common in chloroform, and does not so seriously depress the heart in its later action, but its administration may result in arrest of respiration, due either to a paralysis of the sympathetic nerves, or more frequently to the filling up of the smaller bronchi by mucous, through the destruction of sensibility in the membrane lining them and the consequent cessation of the ciliary motion, which should carry the mucous forward until expectoration can remove it.

The principal source of danger in chloroform narcosis, then, is from stoppage of the heart; in ether from suspension of respiration. We have performed very many experiments in anæsthesia upon the lower animals, and have demonstrated to hundreds of dentists and physicians the constant fact that in death from chloroform the heart first fails in its action, while in death from ether it continues its movements for a greater or less time after respiration ceases. In some hundreds of experiments with ether upon the smaller animals, such as dogs, cats, rabbits, etc., no life was ever lost unless purposely sacrificed. Artificial respiration, if resorted to in time, invariably restored them, because the heart was yet in action and circulation was unimpaired. The reverse of this is true in the use of chloroform, and hence an

animal cannot always be revived in case of unfavorable symptoms.

But sulphuric ether has no power to stimulate a depressed or paralyzed heart, nor is chloroform of any use in cases of suspended respiration. What good reason is there, then, for administering a mixture of the two? Does not the operator necessarily double the danger by subjecting his patient to the hazards of both?

The addition of alcohol dilutes the anæsthetic mixture, and thereby diminishes the danger of giving an atmosphere too heavily charged with the vapor. It also acts as a stimulant, and thus assists in the diffusion of the agent as well as in its final elimination. But if it be this latter effect which is desired, a much better way is to administer it separately.

We submit that the administration of a mixture of anæsthetic agents unnecessarily complicates the operation; that it is unscientific, and is attended by an increased risk to the life of the patient.—[Ed., W. C. B.]

THE INFLUENCE OF THE TRIGEMINUS NERVE ON THE ORGANS OF HEARING.

Dr. Kirchner, in his experiments on the fifth pair of nerves, attempts to show that diseases of the ears may be due to injuries of the branches of the trigeminus. After referring to the experiments of Gelle, Hagen and Berthold on the vaso-motor disturbances of the tympanic cavity, he turns his attention to the third branch of the trigeminus, because filaments of this nerve are distributed to the pharynx and also innervate the tensor vel palati, probably the most important of the tubal muscles.

Dr. Kirchner demonstrates that diseases of the pharynx have an etiological relation to diseases or disturbances of the drum-head on account of the peculiar nerve distribution. With the assistance of Dr. Ashenbrandt, the author made a number of experiments on animals, laying bare the third branch of the fifth nerve in such a way as to expose the tympanic cavity at the same time, so that direct observations could be made. The condition of the mucous membrane with regard to its vascular supply and the secretion of mucous could be accurately studied while the nerve itself was being cut, later on, when stimulated by electricity. When a weak current was used for about ten seconds the delicate network of vessels in the tympanic mucous membrane could be seen to enlarge and remain distinctly visible for a few sec-

onds, even after electrization had been discontinued. After the application of a strong current for a longer time there was a distinctive congestion of the capillary network, the color of the mucous membrane increased to a livid red, which disappeared only after a considerable length of time. Besides these changes, Dr. Kirchner states, when a very strong current was used, a thin, watery exudation made its appearance on the mucous membrane of the tympanic cavity, and when the irritation ceased the exudation disappeared. When the fifth nerve was injured by pulling out its root near the base of the skull, the tympanic mucous membrane became swollen and secreted a muco-purulent matter in the course of a few weeks after the injury. These experiences may be explained in the following manner: irritation of the third branch of the fifth nerve might excite the nerve-fibres controlling secretion, by a reflex action, or the strong injection of the capillary system that occurs at the same time causes an increase of secretion, or the otic ganglion may be affected through the nerve filaments running from the tympanic cavity to the ganglion, and in this manner influence the secretory as well as the circulatory condition. Aside from the scientific value of these experiments, they may be of practical benefit to the physician, enabling him to treat more successfully a disease of the ear when arising after an injury to the trigeminus.

—*Lancet and Clinic.*

Editorial.

MEDICAL LITERATURE AND MEDICAL JOURNALS.—The results of thought and experiment in the domain of medicine, obtained for it by the work of any one man or of any set of men, are looked upon as common property by the rest of the profession. That is, a book that represents the work of a life time—Sir Thomas Watson's or Frerichs', for instance—is regarded as a fountain to which all may go and draw thence what facts or ideas they deem of highest value.

Thus the offspring of one man's thought creeps into general literature, sooner or later to lose its individuality, or, rather, to become axiomatic. Anything good belongs to all alike. Any progress in medicine in one part of the world is heralded on all sides, repeated, modified, used, and then merged into the great mass of facts. This is as it should be: it shows, we think, that there is a broad, cosmopolitan

and generous spirit—generosity in the donor, generosity in the science that so unhesitatingly receives the good. Still, some one must be *first* to announce that work or thought of merit, for it cannot of itself make way into the mind of man. And here is where the rivalry of nation, man and journal strives to keep in the front rank. It is, or should be, always a matter of pride with journals—with medical journals especially—to be *first* in propagating welcome, helpful and meritorious news to their readers. Now, when the same article is sent to several journals *simultaneously*, when it is published by each—and each ignorant of its publication elsewhere—who shall claim priority? None can of a certainty. There is no honor for the publisher in such a case; and it does not seem in good taste, indeed scarcely in good faith, for a contributor to anticipate his manuscript in this way. Once an article is published in one paper it is carried everywhere, if deserving of such honor, and recognition is always made of the original source. If a man has anything good to state, it will make its way uncared for after the first publication; he will find it in all out-of-the-way corners and in publications that he never wot of. But when several copies of the same thing are despatched to as many journals, does it not seem that there is a lurking fear that as this is an only chance the most must be made of it? The sender feels sure that three or four will publish it; and should it go no further, but merely “stick there,” he is satisfied.

This may be a pessimistic view; but it certainly is a milder one than would be taken of it by magazines devoted to general literature. And we are led in this connection to remark that contributions to medical literature are not made often enough by those who have large experience or who read extensively. Their duty is to build up a medical literature that shall be on a par with that of our trans-Atlantic brethren. On looking over a foreign medical book one is struck with the great frequency with which reference is made to articles in journals. Virchow, Jenner, Quinke, Charcot, Frerichs—these men and a host of others are constantly found in the literature of their respective countries, as represented by the journals, and yet we must believe that they are as busy as the majority of American practitioners. The fact is, they have a habit of writing, and the habit grows, while the tendency among us, if it exists, is very slow in its development, and many instructive and interesting cases and views are thus lost that would otherwise become part and parcel of our medical knowledge.

MICROSCOPIC ORGANISMS AND ANTISEPSIS.—Theories rise and fall, and in the medical world are as warmly espoused or rejected as are political tenets in war times.

Years ago the "gaseous theory" of disease was promulgated. To-day its precise import and scope are scarcely known, so completely has it fallen its desuetude. At the present time it is "germ," "bacteria" or "bacillus" on every side. Even the daily papers take occasion to throw gloom over us on the occurrence of a snow-storm; for, they say, the snow covers the hibernating (microscopic) germs of disease, which lurk therein only to come forth with renewed vigor in the spring—and filth—to insidiously kill what children or adult weaklings may happen to be near them.

The bacillus now is on the *tapis*. Is it or is it not? That is the question. Or, given its existence; required, its importance. Some call it a fat crystal. Others, acknowledging that it is an entity and that it is found in phthisical developments, whether catarrhal or tubercular, claim that as it is found in other conditions and not *always* in tuberculosis, much if not all of its etiological potency is gone.

The fact that heredity is a great factor in phthisis is universally acknowledged. How can we, then, explain the far-reaching influence of inherited tendencies if a derminate organism is the sole essence of it? No one goes so far as to say that the bacillus is transmitted from generation to generation of human beings, so it is difficult to make the two statements logically agree. Any theory that attempts to state the discovery of the ultimate, essential cause of a disease is apt to be pretty thoroughly riddled before acceptance. And who can point to *one* that has been accepted? What is gout, is a question as far from being answered to-day as it was fifty years ago; although the discovery of the blood condition in gout was thought to herald a new era in pathology and pathogenesis. So with rheumatism, in spite of the fact that lactic acid's association therewith led to impulsive statements about "ultimate causes." One of the most eminent pathologists in the country remarked, a few days ago, that we are as "far from solving the problem of the cause and essence of disease as were our predecessors of fifty years ago."

Look for a moment at the arguments and dogmatic statements upon which the bacterian and bacilli theories rest. Concerning the former, we know it is found on the diphtheritic membrane in large numbers; but it does seem more likely to be the result of decay of tissue than

the cause thereof. For after gangrenous cavities are formed in the lung, following compound fractures of the ribs, as from the kick of a horse, the bacteria exist in the putrid fluid in very swarms. Now, the cause of the fracture and subsequent gangrene did not depend on *minute* organisms, surely.

Then, again, one coterie of observers cultivate the bacteria, inject them into the blood of animals, and directly there follows a special and peculiar lesion—tuberculosis, as a rule, is the malady concerning which the experiments are made.

Others go through the same operation, step by step, and arrive at negative results only.

Now, upon the view that each man holds regarding germs, whether atmospheric or no, will depend in very great measure his opinion and employment of vigorous and elaborate antisepsis.

At this day, many thoughtful surgeons are abandoning Listerism. Lanson Tait performed 100 consecutive ovariectomies with but three deaths, and in *none* was the Listerian method employed. That is to say, they regard the cleanliness made necessary by Prof. Lister's method as its sole good point, and look upon the elaborate details of its application as worthless. Carbolic acid is no longer a panacea. Some wounds will do well under the most careless treatment; others, in spite of the most careful dressing, after Lister's method, will exhibit signs of gangrene, will be covered with ichorous pus, and will be accompanied by pyæmia. We know of an example in point: in one of the largest hospitals in America the Listerian method was employed in *but one* in sixteen amputations. In this, *one only* did gangrene occur. This is not proof, of course, but 'tis enough; it will serve to show that antisepsis is not the greatest discovery of modern surgery. Finally, one can not help noticing that as the claim of bacteria and germs being the causes of everything, even lobar pneumonia, has been slowly relinquished, so the advocates of Listerism and antisepsis have been less strenuous in their efforts to prove that a certain routine must in every case be observed if recovery is to be expected or complications warded off.

RELAXATION FOR DENTISTS.—Of all the plain, though sometimes unpalatable, truths which were told Americans by that distinguished scientist, Herbert Spencer, during his late visit to this country, there were none which should sink deeper into our hearts than the charge

that we are too utterly devoted to business, and do not take sufficient time for relaxation. The average American has a highly-wrought, nervous organization, partially due to a peculiar climate, but constantly exaggerated by the incessant whirl and bustle of excitement in which we delight, and by the intense and feverish application to business so characteristic of us as a people. Even the very few pleasures which we allow ourselves are tainted by this over-exertion, and our hours of ease are made laborious by a constant state of unrest. If the typical American travels, though it be solely for recreation and pleasure, it must be by express train. If he attend the theatre or opera, or goes to a concert, he does not arrive until after the commencement, while he leaves just before the close, and all the intervals are filled up with his newspaper or note-book. There is no quiet, leisurely repose, no shaking off of worldly cares, no forgetting the shop, no utter abandonment to entire leisure. Because of this, we are too often the prey of certain ailments to which the average European is almost a stranger. Whatever illness attacks the American is almost sure to be complicated with some nervous disorder. The Englishman eats an amount of hearty food which astounds an American. According to our dietary laws, he should suffer all the agonies of dyspepsia, whereas, that disease is almost a stranger to him. His digestion is assisted by an amount of vigorous out-of-door exercise, and by hours of relaxation and rest to which the American is a stranger. The fondness of the Englishman for wading up to his knees in ice-cold water that he may secure a few worthless fish, or for tramping all day through mud and mire for the purpose of shooting a few birds which he is not allowed to carry off the premises, is to us inexplicable. But the truth is, John Bull is a fine, sturdy animal, and he believes in cultivating and gratifying the animal part of his nature. The American is too often so utterly engrossed in the accomplishment of some desired purpose, that he neglects the physical part of his being, upon which his mental powers are so largely dependent for healthy action, and, in consequence, breaks down with his set task, perhaps, but half accomplished.

It is high time for the dental profession to take a new departure in this respect. There are few avocations which make greater demands upon the vital forces than does ours. The mind of the dentist must be constantly alert to meet the ever-varying complications which arise. No two operations are performed exactly alike, and it requires the strictest

attention to details, that imperfections may not creep in. A moment's inadvertence may ruin his finest work.

Then again, he is always laboring upon sensitive tissue, often for timid, shrinking, apprehensive patients, and thus his sympathies are constantly excited, and his nerve tension extreme. Add to this the fact that his occupation requires him to often remain in a constrained, unnatural position, that his life is an inactive one, within doors, too often in an overheated room, that he is subjected to the exhalations of diseased people, with offensive, fetid breaths, and there is little wonder that in middle life the operative dentist usually begins to experience a premature old age.

All these adverse conditions might be successfully combated by a systematic course of outdoor exercise, but the busy operator needs every hour of sunlight for the performance of his task, which can only be accomplished in a strong light. The very hours which are best fitted for recreation, the light of the blessed sun which should regularly fall upon him during relaxation, must be utilized in the service of others, and he lives in a forcing house which, while it may tend to develop certain faculties, is prejudicial to perfect physical health.

Dental practice in this country is far different from that of Europe. There are many more long, tedious, and difficult operations performed here. We see fewer patients in a day, and spend more time over each one. Then, too, ours is usually a more *personal* practice than is that of our professional brethren in Europe. Patients demand the exclusive attention of the dentist, and are not content to submit themselves to an assistant for minor operations. A practice here, while it is more readily obtained, is also more quickly lost. People are less tenacious of old connections, and seek a new dentist whenever they are unable to command the personal services of the old one, so that to retain a practice once gained, it is requisite that the operator have few holidays. Taking little relaxation themselves, our people are not tolerant of those who, professing to be at their service, are not eternally at their beck and call. There may be a few favored practitioners who can afford to ignore these unreasonable demands, but the average dentist must comply or starve.

We have no thorough system of pupilage, nor have we the class of trained assistants that are easily obtained in Europe. Here, any man is as good as his master, if not a little better, and as soon as a pupil or assistant has acquired sufficient skill to extract a tooth and insert a

cheap rubber substitute, he straightway strikes out for himself, and appeals for support to such patients of his preceptor as he has been permitted to meet, urging that he has been enabled to acquire all the methods and knowledge of the latter, and promising the same results for half the price. In Europe, it is not thus easy to step from a subordinate to an independent position. Business moves in certain well-defined grooves, and public sentiment is not thus tolerant of one who desires to supplant an old-established practitioner. The student or assistant must enter upon practice with the good will of his preceptor, if it be in his immediate neighborhood.

But it is not alone the public sentiment of the older countries which condemns such acts. The law takes cognizance of the rights of the master, and forces the student to pass a sufficient term of pupilage to become thoroughly schooled in his business, before he begins an independent career. It is not sufficient for him to learn how to prepare a vulcanite denture. He must be versed in metallurgy and prepared to work gold. In consequence of all these things, there is, in Great Britain and upon the Continent, a class of assistants or journeyman dentists who are content to remain subordinates throughout their lives. They are quite competent to do all the mechanical work without close supervision, and to perform the minor operations of the surgery. They can take the place of the dentist while he may be enjoying relaxation, and patients do not manifest the annoyance at being served by them which is common in this country, where every man is so exceedingly jealous of his independence, and so apprehensive lest his dignity be compromised, that he declines to be served by a subordinate and demands the presence of the principal.

Our methods of conducting a dental practice have their compensating advantages, but they chiefly accrue to the patient. We are quick to seize upon any idea which will result in our good, but the whole fabric of our social institutions is so widely different from that of the old country that it is difficult to see wherein lies the remedy for the constrained overwork of our best dentists, unless it be through the slow growth of an enlightened public opinion. The safeguards which, in England, for instance, are sufficient to protect a dentist from spoliation of his practice through the introduction of a competent assistant to his patients are inadequate here. If he bind such an one under heavy penalty not to engage in independent practice in his neighborhood, the chances are that the courts would not enforce the penalty,

and even should they do so, public opinion would condemn the practitioner who would thus endeavor to restrain unfair competition, and the notoriety of the case would work only evil to the senior, while it would profitably advertise the junior. Recognizing these facts, many of the better class of dentists refuse to receive pupils, decline to employ competent assistants, and are compelled to get along as best they may, with the help of a girl to clean their instruments and keep everything in order. Dental legislation is doing much to better this condition, mainly through the production of a better educated public opinion. The remainder must rest with the dentists themselves. If, in every city or community, all should agree upon taking one day, or even half a day in each week for needful recreation, no one would be injured, while all would be materially benefited. It is universally admitted that the rest of the Sabbath is profitable, not alone upon moral grounds, but as well from sanitary considerations. The man who works six days in the week and rests upon the seventh, will, in the long run, do more and better work than he who gives himself no rest. But public sentiment demands that, while Sunday shall be given up to rest, it shall not be devoted to recreation, and the dentist who proposes to secure the respect of church-going people must take another day for the out-door exercise so necessary for his physical well being. Although teachers labor but about six hours each day, public opinion demands that the schools shall be closed on Saturdays either for a whole or half holiday. The lawyer, although not confined to such close office hours as the dentist, is seldom found in on Saturdays. Clergymen almost invariably reserve Mondays to themselves. Physicians keep but few office hours, and the rest of their time is spent out of doors, either in visiting patients or taking needful exercise. A system of early closing on Saturdays is fast becoming an established custom in shops and stores and manufactories, that proprietors and employees may have time for personal enjoyment. An old and venerated institution teaches us that wise men divide their time into three parts, whereby they obtain eight hours for the service of God and a distressed worthy brother, eight for their usual avocations, and eight for refreshment and sleep. The hard-worked dentist cannot cease from his labors for one-third of his waking hours. Why should it not be possible for the profession generally to agree upon a regular half holiday for Saturday?

The time, too, must eventually come when we shall have among us

a class of competent assistants, and that without prejudice to one's practice. To this end every dentist should labor, by encouraging a public sentiment which will sustain a dentist in demanding and enforcing sufficient guarantees, that the privilege of introduction and recommendation to one's patients shall not be abused by the trusted junior.

In this country all needful reforms must be accomplished by concerted action and through a popular vote. So imperative do we believe to be this need for more recreation for dentists that we desire earnestly to commend the subject to the consideration of dental societies, that some remedy for the evils under which the profession is laboring may be devised. In the larger cities it ought not to be difficult for the operative dentists to agree upon a day, or half a day, to be strictly observed as a holiday, when offices would be closed, or left in charge of some one empowered to make appointments.

Many of the States have dental laws which forbid the commencement of an independent practice by any one who has not the requisite qualifications. While it may be difficult, nay, impracticable in many cases, to enforce such enactments, yet we believe they will result in good, through a wholesome enlightenment of the public mind, and thus, in the end, bring about a proper settlement of the vexed question of dental pupilage, with the final result of securing a class of trained assistants who will lighten the labors of an overworked profession.

GOLD ALLOY.—Dr. W. H. Dorrance prepares gold solder after this manner: take of pure silver one part, of zinc two parts and of copper three parts. Melt the silver and copper together and add the zinc slowly, in small pieces, allowing all the fumes to pass off. If, after thorough mixing, this is thrown into water, it will separate into small pellets. With these reduce the gold to the proper degree of fineness. If pure gold is used, the number of parts out of twenty-four which are taken will express the fineness of the solder in carats. Twenty parts of gold will make 20-k. solder; sixteen parts, 16-k. solder, etc. If U. S. coin be used, there will be two parts more of alloy, and twenty parts of gold will make but 18-k. solder. After melting it may be run into an ingot, when it will readily roll out into a plate of any desired thickness.

We have used solder made in this manner, and can express our

entire satisfaction with it. It bears an excellent color, flows easily and is very strong. We are under obligations to Dr. Dorrance for this formula, as well as for other courtesies.

A POISON FOR TUBERCULAR BACTERIA.—A paper was recently communicated to the Paris Académie des Sciences, by M. de Korab, on the action of helenine on the bacteria of tuberculosis. The facts mentioned deserve notice, although we fear that the hopes suggested are too bright to be realized. The bacilli were cultivated in bovine blood serum, which was daily heated for a week to effectually sterilize it, and was then coagulated by a temperature of 65 degrees C. A guinea pig having been rendered tubercular by inoculation and inhalation, small tubercule masses were taken from it, introduced into ten tubes containing the tubercular serum, and the tubes plugged after some helenine had been poured into three of the tubes. All were kept at a temperature of 37 degrees C. for a week, and at the end of that time, inoculation experiments showed that the organism in the tubes to which the helenine had been added, no longer caused tuberculosis, which was readily produced by the contents of the other tubes.

SPONGES FOR DENTISTS' USE.—Small velvet sponges are a great convenience in the operating room. They are often of great service in absorbing the saliva which threatens encroachment upon an operation in progress. If a bowl containing slightly moistened sponges of assorted sizes be kept within easy reaching distance they will be used much more frequently than one would imagine, and will soon become a necessity for the removal of stains from instruments and from the rubber-dam, as well as from the person of both patient and operator. Mouth napkins are not always protective, and the operative dentist cannot be too fastidious regarding cleanliness.

INTRA-UTERINE VACCINATION.—Dr. Truzzi vaccinated a number of pregnant women during the last three months of gestation, with a view to determine the protection, if any, afforded to the child. The results were negative, as the children were all successfully vaccinated a few days after birth.—*Centralblatt für Gynakologie.*

Current News and Opinion.

NEW YORK PATHOLOGICAL SOCIETY.—The following officers were elected at the annual meeting held on the evening of January 10: Dr. George F. Shrady, President; Dr. R. E. Van Gieson, Vice-President; Dr. Wesley M. Carpenter, Secretary; Dr. John H. Hinton, Treasurer, and Dr. John C. Peters, Editor of Transactions. Drs. F. R. S. Drake, J. H. Ripley, J. H. Hinton, V. P. Gibney, and J. C. Peters, Committee on Admissions and Ethics; Dr. J. C. Peters (Editor of Transactions), W. M. Carpenter, J. H. Hinton, E. C. Wendt, Beverley Robinson, and the President, Committee on Publication.

NEW YORK ACADEMY OF MEDICINE—ELECTION OF OFFICERS.—At the annual meeting, held January 4, 1883, the following officers were elected: President, Fordyce Barker, M.D., LL.D.; Vice-President, H. P. Farnham, M.D.; Recording Secretary, W. H. Katzenbach, M.D.; Corresponding Secretary, J. G. Adams, M.D.; Treasurer, William F. Cushman, M.D.; Trustee, Gouverneur M. Smith, M.D.; Treasurer of Board of Trustees, Charles Wright, M.D.; Member of Committee on Admissions, E. L. Partridge, M.D.; Member of Committee on Ethics, H. E. Crampton, M.D.; Member of Committee on Education, J. C. Dalton, M.D.; Member of Committee on Library, A. McLane Hamilton, M.D.

THE TWELFTH ANNUAL DINNER of the Alumni Association of the Medical Department of the New York University, was held at Delmonico's on Wednesday evening, January 24. About one hundred were present. Before the dinner, a business meeting was held, at which Dr. A. E. McDonald was elected President of the Association for the ensuing year. Toasts were responded to by Drs. Loomis, McDonald, A. A. Smith, of the Bellevue Hospital Medical College, Commissioner Brennan, Noah Brooks, Esq., and the Rev. Drs. Hall and Taylor. The evening was most enjoyable, all the speeches being of the shortest and wittiest, which, with the Delmonico *menu*, left nothing to be desired.

THE AUTOPSY performed on the body of Gambetta by Drs. Brouardel and Cornil showed that the fatal issue was induced by perityphlitis

and pericolitis, and that toward the end, a slight peritonitis had been lighted up. Profs. Charcot, Verneuil, Liouville, Guerdat and many other celebrities of the faculty were present, and signed the report. The brain was found to weigh 1,100 grammes.

DR. J. BURDON SANDERSON, editor of the "Handbook for the Pysiological Laboratory," has been appointed to the Waynflete Chair of Physiology at Oxford University, England.

IN the new German Pharmacopœia, 360 articles have been struck out, and 48 added, a decrease of 312, the whole number being about 600. In the new edition of the U. S. Pharmacopœia 229 articles were cut out and 256 added, a net increase of 27, the whole number being 1,000.

CHARITY HOSPITAL, NEW YORK.—At the annual meeting of the Medical Board of Charity Hospital, at the Academy of Medicine, the following officers were elected for the current year: President, Dr. John H. Ripley; Vice-President, Dr. T. F. Ferguson; Secretary, Dr. Edward S. Peck.

IN No. 17 of *Le Progres Medical*, is an interesting account of cerebrospinal meningitis, occurring in a young woman toward the close of pregnancy. Her child developed the disease two hours after birth, and death rapidly ensued. This goes to show that the disease is properly classified, when placed under the head of miasmatic-contagious diseases.

COCKROACH TEA.—It is claimed that a decoction of female cockroaches (with the addition of a little brandy) is often used in practice, especially in the South, though no mention is made of it by prescriber or compounder, for obvious reasons. It is used as a diuretic in Russia, and also in certain forms of Bright's disease. Its properties are said to resemble those of cantharides.

THE IRISH COLLEGE OF PHYSICIANS has followed in the steps of the English college in adopting the following resolution: "That the advertisement of medical books in other than medical publications, and the giving by any of the licentiates, members and fellows of the college, whether for publication or not, laudatory certificates of medicinal or other preparations, or medical or surgical appliances, is misleading to the public, derogatory to the dignity of the profession, and is censurable by the college."

THE proposed journal of the American Medical Association may now be regarded as a certainty. A sufficient number of subscriptions are assured to justify the Board of Trustees in taking steps for the publication of the first number on July 1, 1883.

NEW YORK OPHTHALMOLOGICAL SOCIETY.—At the annual meeting, held January 8, 1883, the following officers were elected: President, George R. Cutter, M. D.; Vice-President, David Webster, M. D.; Secretary and Treasurer, Jas. L. Minor, M. D.

LOCAL ANÆSTHESIA.—Some experiments made in Germany in the production of local anæsthesia show that if the hand be immersed for a short time in ice water severe pain is caused, but no pain is produced on immersing the hand in cold alcohol of five degrees Cent. Glycerine was found to possess a similar property. Ether excited pain and quicksilver more acute pain still, causing the speedy withdrawal of the finger when plunged into this liquid at a temperature of three degrees. It was ascertained that, on the finger being held for a long time in alcohol having a temperature of five degrees Cent., no pain was experienced, and, although the finger distinctly perceived the faintest touch, sharp pricks gave no pain. This seemed to show that the application of cold alcohol has the effect of depriving the part of the special sensibility of pain, without, however, impairing the delicacy of the general tactile sensation which resides in the superficial integument.

ST. LOUIS DENTISTS.—The regular meetings of the St. Louis Dental Society are held on the first Tuesday of each month. At the annual meeting, held Tuesday, January 2, 1883, the following were elected officers for the ensuing year: Dr. John G. Harper, President; Dr. J. B. Newby, Vice-President; Dr. A. H. Fuller, Corresponding Secretary; Dr. J. W. Whipple, Recording Secretary; Dr. Geo. A. Bowman, Treasurer.

THE next meeting of the Brooklyn Dental Society will be held at the residence of Dr. Thos. Frey, No. 18 Clinton street, on Monday evening, February 12, 1883.

HOSPITAL FOR CONTAGIOUS DISEASES.—The Board of Estimate and Apportionment has appropriated \$50,000 for the erection of a hospital for children suffering from contagious diseases.

THE New York Society of Medical Jurisprudence will hold its second regular meeting on Thursday evening, February 8, 1883, at eight o'clock, at the Academy of Medicine, 12 West 31st street. Order—"Intellectual Monomania with Depression in its Medico-Legal Relations," as illustrated by the case of Duburque, the 14th Street assassin. By Prof. Wm. A. Hammond, M.D.

Bibliographical.

The Treatment of Diseases by the Hypodermatic Method: A Manual of Hypodermatic Medicatum. Fourth Edition. By ROBERT BARTHOLOW, M.A., M.D., LL.D. Philadelphia: Lippincott & Co. 1882.

The fourth edition of Prof. Bartholow's work forms a volume of over three hundred and fifty pages, showing how important and extended is this comparatively new method of medication.

Each of the thirty-four drugs he names as fitted for administration by this method, is treated of in the same methodical manner; but the physiological effects, it seems to us, occupy too much space in proportion to their value, when compared with therapy.

It is by no means proven that the action of drugs is the same in disease as in health; indeed, it is often markedly different. But Dr. Bartholow, here as in his work on "Materia Medica," lays great stress upon this division of his book, more so than is necessary for the recognition of symptoms of a toxic dose, which, for the therapist, is alone of value in this regard. However clear and elaborate the expositions are—and they are unsurpassed in this regard in the present work—they often belong to the domain of physiology, pure and simple, and in the modern scientific works on the last-named subject, will be found therein treated much the same as we find them in the manual for Hypodermatic Medication.

Prof. Bartholow uses the word *hypodermatic* in place of hypodermic, and asks aid in its introduction. The former is the correct term, as philology teaches us.

A Treatise on the Physiological and Therapeutic Action of the Sulphate of Quinine. By O. T. MANSON, M.D. Philadelphia: Lippincott & Co 1882.

Quinine has been known but three score years, yet its uses have, in that time, been extended till it nearly stands on a par with opium. In Doctor Manson's interesting little work, are given the history and modes of employment of the sulphate of quinine, in a concise, well-arranged and thorough manner. He has left no authority unquoted.

In yellow fever, our author seems to incline to the general belief, that little is to be expected from quinine. But in cerebro-spinal meningitis, he states (p. 150) that he has "obtained most satisfactory results." He regulated its administration by "the use of the thermometer;" if so, we do not see how he gave numerous "large doses," for cerebro-spinal meningitis is a disease where high temperature is uncommon, and where a fever of 102 or 103 degrees is not looked on as the element of danger. It is rather the effect of the blood-poison that we fear, and the pressure effects of an exudation about the base of the brain. Quinine is not generally looked upon as beneficial in cerebro-spinal meningitis.

Since the adoption of quinine in his treatment of croup, Dr. Manson has "not lost a case." He is fortunate.

The book, in its "get up," has only one fault—the absence of either index or table of contents.

Caries and Necrosis of the Maxillary Bones. By TRUMAN W. BROPHY, M. D., D. D. S. A concise and clear statement of the etiology, pathology, diagnosis and treatment of these lesions, with a history of illustrative cases. Dr. Brophy has abundant opportunities for the study of the subject through his professorship in Rush Medical College, and this paper is the first result of his observations, to be supplemented, we hope, by further reports of a yet more extended experience.

The Minute Anatomy of the Teeth in the Light of the Bioplaxion Theory. By CARL HEITZMAN, M. D., and *The Minute Anatomy, Physiology and Therapeutics of the Dental Pulp.* By C. F. W. BODECKER, D. D. S., M. D. S.

We are in receipt of a pamphlet containing reprints of these notable contributions to our literature, and although both the papers have been before the profession for some time, their present reissue demands some notice.

The theory of the reticulated structure of the living matter in tissues, as announced by Carl Heitzman, has been bitterly assailed in many quarters as inconsistent with known facts. We do not propose to defend it, or even to announce an adherence to the doctrine. But

that protoplasm is structureless, or that the protoplasmic elements of tissues and organs are isolated, disconnected, disassociated, is not in harmony with our ideas of function. What may be the nature of that interdependence is as yet a disputed question, and every reflecting anatomist will welcome the results of any exhaustive research which promises to throw additional light upon the vexed subject.

But some of Dr. Heitzman's conclusions do not seem to conclude. They are too vague and obscure for the comprehension of the average reader. Any statement of a scientific fact should be so clearly and concisely expressed that the purport may be apparent at once. If any reader of the pamphlet under consideration can grasp the meaning of its explanation of dental caries, he must have been under the personal instruction of its writer, or be blessed with an intuition that smiles at subtilities.

Dr. Bodecker has carried the investigation of dental tissues beyond the uttermost point reached by any of his predecessors. He has added to the sum of professional understanding a positive knowledge of many hitherto disputed questions. He has unmistakably demonstrated facts which were previously only surmised. There is probably no man now living who has a clearer and more intimate knowledge of the structure of the dental pulp than has Dr. Bodecker. When he speaks, therefore, he does it positively, and as one who knows whereof he affirms, and he is accepted as an authority, for however men may dissent from some of his conclusions they cannot impeach his knowledge of facts. The monograph under consideration is worthy the most careful attention of every thinking dentist. Nay, more: he who has not accorded to it a careful study is unqualified to form an intelligent opinion of the things concerning which the paper treats.

THE *Medical Record* begins the present year with enlarged pages, and paper of finer quality. It greatly resembles the new weekly—but old publication—the *New York Medical Journal*. Both, we think, though now capable of containing more reading matter, are not of so convenient a form as of old.

THE *Planet* is an aspirant for medical journalistic honors. It is “a very little one,” but, as the French proverb goes, all comes to him who can wait.

THE *Medical Age* is a consolidation of the *Michigan Medical News* and the *Detroit Clinic*. Dr. Mulheron is the editor.

THE first number of the *Medical and Surgical Herald* comes from Missouri, as the organ of the Joplin College of Physicians and Surgeons.

L'Union Medicale du Canada enters the new year, with Drs. Lamarche and Desrosiers as editors, and with such an arrangement of type that ten pages more of matter are given monthly.

Pocket Therapeutics and Dose Book. By MORSE STEWART, Jr., B.A., M.D. Third edition. Detroit: 1882.

A very handy and neat little volume, showing great care in its compilation.

Bulletin de l'Academie Royale de Medicine de Belgique. Bruxelles: December, 1882.

The last instalment of the *Bulletin* for 1882, completes a yearly volume of 1,116 pages. In this, the last number, are several most interesting discussions and papers concerning the so-called "vaccinating and anti-vaccinating schools," the treatment of "diabetes mellitus with permanganate of potash," and the account of some unique surgical operations.

PAMPHLETS RECEIVED.—*Contribution to Surgical Gynecology.* By EDWARD W. JENKS, M.D., LL.D. Chicago: 1882. *Modified Listerism in Ovariectomy, with a Report of Five Recent Operations.* By EDWARD W. JENKS, M.D., LL.D. Chicago: 1882. *Bromide of Ethyl, the most perfect Anæsthetic for short painful surgical operations.* By JULIAN J. CHISHOLM, M.D., Professor in the University of Maryland. Baltimore: 1883. *Annual Address Delivered before the American Academy of Medicine,* by TRAILL GREEN, A.M., M.D., President of the Academy, at Philadelphia, October 26, 1882.

Dental Chart. At the annual meeting of the Dental Society of the State of New York, held in Albany in May, 1882, Dr. Frank Abbott presented a diagrammatic representation of a vertical section through the centre of an incisor tooth and all the adjacent and investing tissues. It was upon a scale of such magnitude as to represent all the elements as they would be seen through a microscope magnifying some thousands of diameters, the chart being about seven feet in length. All the minute histology of the tooth, with the environing tissues, was faithfully represented in colors, and it was pronounced at the time the finest thing of the kind yet produced.

The State Dental Society took immediate action, voting that it should be published in some way for the benefit of the profession at large, and appointing a committee to act with Prof. Abbott in securing so desirable a result.

Through the courtesy of the S. S. White Dental Manufacturing Company, we are now in receipt of a fac simile of the original, printed in more colors than we care to enumerate, upon cardboard 14 x 20 inches in size, with full reference explanation upon the margin, forming altogether the most beautiful dental chart that we have yet seen. Suitably framed, it would not only form a rare ornament for the walls of any dental office, but it would prove invaluable as a guide to the study of the intimate structure of dental tissues.

Obituary.

It is with feelings of deep regret that we chronicle the death of Dr George Miller Beard, of this city. The doctor had been suffering from an alveolar abscess for some days, when, suddenly and unexpectedly pleuro-pneumonia set in, terminating fatally on January 23.

Dr. Beard was a distinguished practitioner and an untiring writer. He has often been heard through the columns of the *INDEPENDENT PRACTITIONER*, his contributions being of the highest interest, from their practical bearing and peculiar and original scope. He had also been known as a lecturer. Among the principal events of the doctor's busy life was his controversy with the Rev. Dr. Theodore L. Cuyler, of Brooklyn, on the subject of temperance; his public contest with the faculty of Yale College, many of whom had been experimenting with Brown, the mind reader, which at the time created great excitement.

Dr. Beard was connected professionally as an expert with the trials of Cadet Whittaker and Guiteau. In the case of the former, he testified for the defence, taking the position that the accusation against Whittaker was unjust. In the case of Guiteau, Dr. Beard's position was that the assassin was insane. He predicted, in detail, the manner in which Guiteau would meet his fate, with insane speech on his lips, and this prediction was fulfilled.

Dr. Beard's investigations into sea sickness were of great value, and

the plan of treatment has now been successfully carried out on every sea, for the longest voyages. At the end of last year, and even within the past few weeks, Dr. Beard continued his muscle reading studies with Stuart Cumberland, the English mind reader. With the inventor Edison he spent much time in experimenting. Dr. Beard's writings and researches have had more influence in Germany than any other country, and many of his works have been translated into German.

Dr. Beard was born at Montville, Conn., May 8, 1839. He entered the Academical Department of Yale College, in 1858, and graduated four years later. In college, he was a prominent scholar and writer, receiving a prize for English composition and the Townsend premium. He was also editor of the *Yale Literary Magazine*. After graduating in arts, he studied one year in the Medical Department of Yale College, and from 1863 to 1864, was Acting Assistant Surgeon in the United States Navy. In 1866, he graduated at the College of Physicians and Surgeons in this city.

Just before his death, he frequently repeated, "I wish it were possible for me to record, for the sake of science, the thoughts of a dying man. This final battle that I am going through with would be interesting." Indeed, these words were almost the last he uttered. Thus he passed away, with the key to his whole life upon his lips.

MARSHALL HICKMAN WEBB, D. D. S., died at his residence, Lancaster, Pa., on January 1, after a lingering illness, of cancer of the colon, in the 39th year of his age. Dr. Webb was born at Marlsborough, Chester Co., Pa., on October 28, 1844. He studied dentistry with Dr. Frank Hickman, of Coatesville, and graduated from the Philadelphia Dental College in 1867, settling immediately in Lancaster, where he continued in practice up to the time of his last illness. He was a member of the International Medical Congress of 1881, was a valued associate in many different dental societies, and at his death held the position of Lecturer on Operative Dentistry and Dental Histology in the University of Pennsylvania. He left a work on Operative Dentistry (written during his last illness), which will be published posthumously. He was buried, January 4, at West Chester, Pa.

The sad occasion of the death of Dr. Webb demands something more than a mere formal announcement. A singularly quiet, unobtrusive man,

his skill as an operator was remarkable. Endowed with unusual inventive genius, he was continually devising new methods and implements, by the use of which complicated operations might be simplified, and with a disinterestedness as rare as it was complete, every product of his ingenious mind was freely given to the profession which he loved and honored. His time was always at the disposal of every brother practitioner, and he would at any time leave a paying patient to gratuitously explain some obscure point in practice to an inquiring dentist. He gave to his brethren all he had—himself; and in the very prime of his days he has laid down his burthen, with life's journey but half completed.

But his untimely death is not all of this sad chapter. In his unselfish zeal, and with the apparent promise of years of usefulness before him, he neglected to make provision for the hour of disaster, and to-day his loved ones—his wife and three children—are exposed to the pitiless storm of adversity. It is no time now to think of what might have been, or to urge his sad fate as a warning and an excuse for illiberality on our part. The profession owes Dr. Webb a debt of gratitude which it is now too late to pay him in person. Let us discharge this honest and just claim by remembering the widow and the fatherless children. If every dentist who has benefited by the unpaid labors of our late associate will but give a tithe of what he has received from him, the family which now knows not where to look for relief will be placed beyond the reach of immediate want. Any of the dental journals will willingly receive and forward contributions, or they may be sent to Dr. J. W. White, at Philadelphia, who will act as treasurer.

A LONDON DENTIST uses a small incandescent carbon lamp to illuminate the cavity of the mouth during dental operations. It is fitted into a vulcanite cup and covered for safety with a glass shade. The lamp is stated by the inventor, who freely offers its advantages to his fellow dentists, "to give a bright light just where it is needed, without producing undue heat."

Extracts.

RADICAL CURE OF POPLITEAL ANEURISM.—Arthur Seeley, twenty-four years of age, single, on the 1st of January, 1882, came to me for medical advice. My diagnosis was Popliteal Aneurism. The following facts were elicited: some eight years ago he had a pair of shears penetrate the popliteal space of his left leg, which confined him to bed for two weeks, soon after which he recovered the use of his leg. Some three years previous to the first of February, 1882, he complained of stiffness of the knee, and a small tumor in the popliteal space. Upon examination, I advised him to consult the professors of the Cleveland City Hospital for treatment.

He entered the hospital on the 21st of February, 1882, and his treatment while there was as follows: First by flexion of the leg upon the thigh, bound by bandages, his heels touched his nates, in which position he was kept for three weeks, his suffering being allayed by morphine, administered hypodermically. There was no improvement of the aneurism. The bandages were removed on the 14th of March, and an attempt was made to straighten the leg, which stood at nearly right angles with the femur.

The leg was raised and placed in an extension sling. An India-rubber bandage was then applied from the calf of the leg to the lower portion of the middle third of the femur, three days, when the swelling and pain of the foot required the removal of the bandage and the re-application of it from the toes to the middle third of the femur.

This treatment was continued until the 4th of April, when he was discharged from the hospital without relief.

The patient returned to this place to have the artery ligated.

On the 11th of April I procured the assistance of Doctors Humphry, Cole and Humphry, to assist me in an attempt to make a radical cure by digital pressure.

At nine of same day we began digital pressure, and continued same for twelve hours, then left patient to rest for thirty-six hours. Again resumed pressure for six hours, at which time pulsation entirely ceased through the aneurism. We still continued pressure for three hours, when we considered the cure effected, which has proved itself permanent.

On July 1st, the tumor was almost obliterated, and the patient resumed his usual work, and has continued well up to December 8, 1882.—*S. Pirley, M.D., in the Medical and Surgical Reporter.*

LESIONS OF THE TEETH IN LOCOMOTOR ATAXY.—At the meeting of the French Association for the Advancement of Science, on August 30, a communication was made by M. Th. David upon lesions of the teeth found in locomotor ataxy. The paper was based upon the observation of a single case, and the following are the most important of the conclusions arrived at from an attentive study of it. The alteration consisted of a rapid decay of the anterior part of the crown of almost all the teeth. The altered substance assumed the consistence of touch-wood and a reddish color. The enamel still retained its polish, but not its hardness. Beneath those parts the pulp had produced a new layer of secondary dentine, and in most of the front teeth the pulp-cavity was filled up. These alterations had nothing in common with caries, and must be referred to nutritive disturbance resulting from the lesion of the central nervous system. The changes are analogous to those which have already been observed to take place in the nails in the course of locomotor ataxy; they would thus establish a pathological relationship between organs already connected by a common epithelial origin. Locally, these alterations recognize for their immediate cause a functional disturbance or a lesion of the dental pulp. The atrophy which has been shown to exist would be quite comparable to that which is observed in the eye under similar circumstances. Whence the final conclusion that we must attribute to the dental pulp the physiological significance of a sensory organ.—*Medical Times and Gazette.*

A CONVENIENT AND DELICATE TEST FOR ALBUMEN.—Dr. A. W. Abbott, of Minneapolis, Minn., sends us the following description of an easy and delicate method of testing albumen:

“Pour a few drops of urine gently down the inside of a glass vessel containing acidulated water at the boiling point. If albumen be present a more or less dense cloud will form just at the dividing line between the fluid tested and the clear water above. As the contrast in opacity is between the clear water and the milky albuminous cloud, the test is very delicate, one-twentieth of one per cent. of albumen making a very perceptible clouding. It has all the advantages of the ordinary heat and acid test and Heller’s nitric acid test. It is even better than the latter in a cloudy fluid as in urine, with urates in excess,

because the clear water above makes a perfect medium in which to detect the faintest cloud, while the layer of coagulated albumen in Heller's test may be entirely obscured by the opacities in the fluid itself. If no test-tube or nitric acid is at hand, pour boiling water into a common tumbler, let it stand a moment to insure the heating of the bottom of the tumbler, empty, refill, acidulate with vinegar, and proceed as before. While this is a modification of the heat and acid test it has the advantage of being applicable under all possible circumstances, whether special apparatus is at hand or not. It is as convenient and accurate in the farm-house as in the laboratory.—*Medical Record*.

THE MECHANICAL TREATMENT OF NEURALGIA.—The author (Dr. E. Rasori) uses the tuning-fork in the treatment of neuralgic pains, applying its vibrating over the course of the painful nerves. He reports the experiments of Boudet, who, by means of the tuning-fork, could check a neuralgia for some time. Boudet used the instrument in accordance with the ideas of Granvill, who thought the neuralgia consisted in a peculiar vibration in the nerve trunk, to induce different vibrations in the painful nerves. He mentions many other experiments from Bal, of Paris, and Renzer and Growers, of London, where the application of the instrument was of benefit.

The instrument was applied for from twenty to forty minutes, when the patient was relieved without further treatment. During the neuralgic attacks, one of the women had suffered from vomiting, but after the relief from the application, she was troubled no more in this way.—*Bolletino della Societa Hancisiana, Roma*.

PLACENTA PRÆVIA.—Dr. John Reid reports a case of placenta prævia, in the *British Medical Journal*, which terminated rather differently from what is generally supposed to be the rule. Having intentionally lacerated the placenta to some extent, with the result of but covering his fingers with blood, he ruptured the membraues, when only some blood-streaked liquor amnii escaped. Within three hours the labor terminated naturally. The placenta was soon expelled, but the uterus still felt like a large doughy mass; but soon after the expulsion of about a pint of blood, firm contraction of the uterus resulted, and the case progressed favorably. This is one of the many cases which militate against Simpson's theory of hemorrhage in placenta prævia, and may also add some additional force to the objections against meddling midwifery.—*Medical and Surgical Reporter*.

Popular Science Department.

PARASITES IN THE PORK SUPPLY OF MONTREAL.

The following are excerpts from an article, entitled as above, by Dr. Osler and Mr. Clement, in the January number of the *Canada Medical and Surgical Journal*:

So far as it is legitimate to draw deductions from the somewhat limited number of observations, we may say that trichinosis is a tolerably common affection in Canadian swine, though not nearly so frequent as in the neighboring States, still, it is much more so than is desirable in the interest of public health. Should microscopic examination of the flesh be included in the inspection, is a question which at once arises. In answering this, several circumstances must be taken into consideration. In the first place, although, per 1,000, a larger number of swine are infested here than in Germany, trichinosis in man is with us a very rare disease, while in Germany epidemics are of yearly occurrence. If we estimate that 100,000 hogs are killed annually for the local markets, that would give at least three or four hundred trichinous animals, whose flesh is consumed by the pork-eating members of the community. Then, about three and a half million pounds of American pork, representing about 15,000 hogs, have been imported into this city during the past year, and as in them the percentage of trichinæ is considerably higher than in Canadian animals, the probable number of infested carcasses consumed does not, at the lowest estimate, fall short of five hundred. Now, were the habits of the people of this city similar to those of the Germans, there can be no doubt that trichinosis, instead of being a rare affection, would be extremely common. Fortunately, raw or only partially cooked pork is not often eaten here, nor are the various kinds of sausages, so dear to the Teuton, much in vogue. *Knackwuerste* and *Bratwuerste*, forms of sausages which are very common, and which are eaten either raw or only warmed, have been the source of a large proportion of the known cases of trichinosis in Germany, 970 out of 1,267. People here almost invariably fry sausages, and smoked meats are not common, nor are they eaten without preliminary cooking. In short, the prophylaxis of the pot and oven in this country and in the neighboring States does more for the public than the most stringent inspection, even as carried out in Prus-

sia, where a microscopic examination is compulsory. If thoroughly cooked, the trichinæ are killed, and may be eaten with impunity; and fortunately, there is a very widespread idea in the community that pork, in all forms, should be well cooked, and to this good custom may be attributed the immunity from infection which the public has enjoyed. Still, it is by no means pleasant to think of the quantity of trichinous flesh which is placed on our markets, and which probably exceeds the entire amount of pork confiscated for other causes. The difficulties in the way of systematic inspection are now, under the Abattoir By-Law, greatly lessened, but to subject the flesh of every hog killed to microscopic examination would require a staff of trained inspectors and an increased expenditure such as our civic authorities would not likely incur. Moreover, considering the rarity of cases of infection, it may be just as well to leave the matter to the cooks of the community, who have so long and so faithfully protected us, with this injunction, "See that all pork is thoroughly roasted, fried or boiled."

CYSTICERCUS CELLULOSE.

Of 1,037 hogs examined, 76 were infested—*i.e.*, 1 in 13.6. Only the livers were inspected, as it was impossible to examine the flesh thoroughly. The numbers varied from one or two to many dozens, and in most instances they were fully developed. The liver is more likely to be affected than the other parts, but the occurrence in this organ is a proof that the animal has been exposed, and should lead to a thorough examination of the flesh.

In order to obtain evidence of the extent to which "measled" meat produces disease—*i.e.*, tapeworm—in the community, we issued a circular to the city physicians asking the number of cases under treatment. Replies were returned by thirty-four doctors, who reported sixty-two cases. At the Smith Worm Company's office, Bleury street, about two new cases a week are treated; some of these, doubtless, come from the country, but we shall probably be within the mark if we estimate the number in the city as not far short of 200. How many of these are due to eating measley veal or beef, and how many to measley pork, we cannot say, but from the specimens examined it would seem that the beef tapeworm (*T. saginata*) is the more prevalent. Not that the pork measle is uncommon; the record above given shows just the contrary. To explain the greater frequency of *T. saginata*, we must suppose either that the beef measle occurs in greater proportion,

or else the pork is more thoroughly cooked than the beef or veal. Then, too, much less pork is eaten fresh, and the salting and pickling processes are usually sufficient to destroy the measles. A point of interest is the temperature necessary to kill them. The observations of Professor Perronico prove that they are invariably killed by a heat of 50 degrees C. or 122 degrees F. Indeed they were swallowed with impunity by his students after exposure to a temperature of 113 degrees F.

CONCLUSIONS.

1. The investigation shows that the hogs slaughtered for our markets present parasites in number sufficient to necessitate a more thorough inspection than is at present carried out.

2. As regards *Trichina spiralis*, which was found in the proportion of 1 to 250, we are of opinion that, considering the extreme rarity of cases of trichinosis, and the difficulties attendant upon a systematic inspection, a compulsory microscopic examination of the flesh of every hog killed is not at present called for.

3. In the case of "measles," the liver should be carefully examined, and if present in it, the flesh of the animal should receive the special attention of the inspector; if only in the liver, the entire carcass need not be confiscated.

4. Echinococcus cysts in the liver render that organ unfit for food, but in other parts, unless very numerous and disorganizing, they may be cut out, and the carcass remain marketable.

5. The public should be made aware of the possible dangers of eating, in any form, raw or partially cooked meat. The best safeguard against parasitic affections is not so much inspection of the flesh, unless, indeed, this is minutely carried out, as careful attention to culinary details.

6. To reduce the number of infested hogs, greater attention should be paid to their hygienic surroundings, particularly in the matter of feeding. The danger is not during the period when the animals are penned and fed on grain, &c., but when they are allowed to roam at large and feed indiscriminately.

Women physicians have been refused permission to practice in Austria.

A MEDICAL OPINION OF THE ELECTRIC LIGHT—Before the electric light becomes, as it must soon become, the common illuminating agent of the period, says the *Lancet*, a determined effort should be made to devise some mode of mitigating its peculiarly unpleasant intensity. The vibratile impulse of the electric force is obviously stronger than the delicate terminal elements of the optic nerve in the retina can bear without injury. We are wont to apply the adjectives “hard” and “soft” to light, and their significance makes them peculiarly appropriate. The electric light is too hard ; it needs to be softened. The waves of motion are too short, and the outstroke—so to say—joins the instroke at too acute an angle. This might doubtless be obviated by employing suitable material for globes and shades, but perhaps the best plan would be to break up and scatter the rays of light by reflection. If a small convex reflector were placed immediately below the light in the protecting globe, and one of larger dimensions above it, so as to secure a double reflection with ultimate divergence downward and outward, the effect would be to cause the “rays” of light to fall obliquely on all objects within the immediate area of illumination. This would, perhaps, obviate the need of colored glasses, which the promoters of the electric light seem to dislike. Certainly there is a considerable sacrifice of power in the use of the opaline globe—so much, indeed, that some of the districts lighted by electricity displayed through this medium do not present any obvious superiority over gas. We throw out the suggestion for what it is worth. Something must be done, for, as it is, the electric light is “trying to the eyes,” which means that it is in danger of injuring them, and already, there is reason to believe, mischief has been wrought by its use. For true comfort there is nothing like the light given by the old-fashioned pure wax candle.—*The Electrician*.

THE FIRST TELEPHONE.—At a recent meeting of the London Physical Society, Prof. Thomson exhibited an early Reis telephone, made by Phillip Reis in 1861, at Frankfort, and designed to transmit speech. It was modeled on the human ear, one form of transmitter being a rudely carved wooden ear with a tympan, having a platinum wire behind hard pressed against a platinum-tipped adjustable spring. Prof. Thomson showed by various proofs that words were actually sent by that and similar apparatus.—*Scientific American*.

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Original Communications.

We are not responsible for the opinions expressed by contributors.

ARTICLE I.

MEDICAL CLINIC.

BY ALFRED L. LOOMIS, A.M., M.D.,

Professor of Pathology and the Practice of Medicine in the Medical Department of the University of the City of New York, held in Bellevue Hospital.

CASE I.

Gentlemen:—This man, *æt.* 34, has reached the 10th day of his illness. Until this attack he had been perfectly healthy. His sickness began with a “chilly sensation”—not a distinct chill—accompanied by headache of moderate severity, pains in the back, nausea and vomiting of what he calls “greenish water.” Epistaxis occurred but once.

Two days after painless diarrhoea came on, and each discharge made him “feel more comfortable.” He had from ten to twelve discharges in the twenty-four hours. Anorexia, emaciation and a steady loss of strength have been marked, yet he worked for eight days after the occurrence of the first symptom, *i.e.*, the “*chilly sensation*.” The patient states he has not been intemperate during the eight months preceding his illness. For a month past he has worked in a damp basement; but there was no one ill in the house in which he lived.

When admitted to my wards yesterday he had a temperature of 103° Fahr. Ten grains of quin. sulph. were administered last

evening, and to-day his temperature fell to 101° Fahr. His pulse is now ninety-six and his temperature $100\frac{1}{2}^{\circ}$ Fahr. His tongue is red, with moist edges, and a dark brown stripe through its centre. His mind is clear; and there are no symptoms indicating marked disturbance of the nervous system. His abdomen is slightly tympanitic; but there is no gurgling in the right iliac fossa. The spleen and liver are both enlarged.

We notice an abundant eruption on the abdomen, purplish in color, somewhat elevated, disappearing only upon firm pressure.

His eyes are not suffused and the countenance has a natural expression. An urinary examination gave only negative results.

A physical exploration of the chest fails to reveal any abnormality.

Now, gentlemen, is there any symptom, or group of symptoms that can lead directly to a diagnosis? Typhoid fever suggests itself. The appearance of the tongue does not settle the question, for such a condition of the tongue may be present independent of typhoid fever. The same may be said of the diarrhoea. The fact that there has been epistaxis does not warrant a diagnosis of typhoid fever.

The eruption is too abundant, too dark, and does not disappear quickly enough on pressure for a typhoid eruption. It rather resembles the eruption of *typhus fever*, without, however, the mottled appearance of the latter.

His temperature is not the typical typhoid temperature. At the time of his admission it was 103° , and after a single dose of quinine it fell to and remained at 100° Fahr. I have never seen the temperature in typhoid fever yield so readily and so long to a single moderate dose of quinine. Moreover, the diarrhoea has ceased without treatment. Typhoid diarrhoea usually continues much longer, unless it is controlled. He has not the characteristic typhoid countenance.

We have, then, a patient who has a continued fever without a single characteristic symptom of typhoid fever. We are not warranted in making the diagnosis of typhoid fever, unless there is present the characteristic "step-ladder" temperature, the "rose rash," the peculiar typhoid expression of the face and the tenderness and gurgling in the right iliac fossa, accompanied by the characteristic diarrhoea.

This man was the first to be sick among those who worked and lived with him.

To have typhoid fever there must be a specific typhoid poison, and there will, therefore, be a history of exposure to this specific contagion.

In the majority of cases of so-called *typhoid fever* occurring in this city, no evidence of specific infection can be traced.

Typhoid fever is transmitted from the sick to the healthy through the stools, but there is no evidence of such an exposure in this case.

There are, however, septic poisons entering our dwellings from many sources, which, combined with malarial poison, give rise to fevers which have many of the phenomena of typhoid fever, but they cannot strictly be classed under that head. I have called this "Typho-malarial Fever." It is not a good name, but it is better than the unclassified fevers of many authors.

In typhoid fever, when the specific element of the fever is once introduced into the body, the individual so infected must pass through the classical phases of the fever.

Much can be done in the way of modifying the symptoms, but when once the fever is developed it must run its course. Such is not the case in the type of fevers to which I am referring. The differential diagnosis between these fevers is often difficult at first, but the absence of the three characteristic symptoms of typhoid fever settles the question.

The question arises, may not the diagnosis be completed by a microscopical examination of the blood for the purpose of determining whether or not pigment is present? We certainly find pigment in the blood in well-marked cases of malarial fever. But I answer, not always.

What I wish to direct special attention to in connection with this case is the care one should take in drawing the line between these two forms of fever. One is a specific disease; the other is not.

One depends upon a specific poison, and requires the greatest possible care to prevent its spread; while the other is a disease which has no specific element.

[To be continued.]

THERE recently died in the Rochus-Spital at Buda-Pest, so says the *Wiener Med. Wochenschrift*, a woman *æt.* 70, in whom no spleen was found. Prof. Schenthauser made the autopsy, which showed that the spleen had not been absorbed from disease, but that it had never existed. It would have been interesting to know what was the condition of the lymphatics and medulla of the bones in this case.

ARTICLE II.

THE CAUSE OF CARIES—BACTERIA OR ACIDS?

[Read before the Brooklyn Dental Society, Jan. 8, 1883.]

BY F. Y. CLARK, M.D., D.D.S.

Mr. President: Through your complimentary invitation I am here to-night to reopen the subject of your last meeting, which was, as you know, "Bacteria of the Teeth—Acids or Germs, which?"

In order to bring the subject more properly before you, I will attempt a brief description of bacteria in general, and then refer more particularly to those found in the mouth and about the teeth, which are claimed to be the real cause of caries.

The organisms called bacteria have been known for over a century; but their nature and connection with disease, until recently, has been little understood. They were for a long time classed with infusoria and other low forms of animal life, but now, thanks to microscopical advancement, are better known, and acknowledged to be of vegetable origin, although when we view their actions—turning, twisting and gliding, with as much or more activity than the lower animal organisms—it is difficult to understand how they can be so classed. With these infinitesimal forms it would seem as though the vegetable and animal ran into each other and became united, and were it not for their sustenance by absorption and their mode of propagation there would be little or no ground for separating them from infusoria or low forms of animal life. They are the "first, smallest, and simplest forms of life, and beyond them, so far as microscopical evidence goes, life does not exist." "Could we," as Cohn says, "view a man under the power used for bringing to view some of these forms, he would appear as large as Mount Blanc, or even Chimborazo; but even under this colossal amplification, the smallest bacteria do not appear larger than the points of commas of good print. In microscopically comparing the diameters of some of these organisms found in the mouth with the bioplastic mesh tubes of the dentine, it is found they have ample room to form a colony in a single mesh. Under favorable circumstances, with moist air, warm temperature, and suitable pabulum, their increase, which is by fission or bi-partition, is beyond conception. Within a few days one bacterium will multiply so that figures almost fail to express them. Thus, what they lack in size they make up in numbers. When a swarm is viewed

under the microscope and a request made to count them, one glance is sufficient to deter any one from such a task. As no doubt most of you know, bacteria are found in all impure matters and fluids in damp places, and in all matters, vegetable and animal, undergoing decomposition. As is seen in fermentation, their rule is to decompose and reproduce. It is only recently that American scientists have given this field of discovery much attention. Nearly all we know of the life history of these forms has been gained from French or German investigators. But the names and classification of the most of these writers are contradictory, inapplicable, and to the American tongue, almost unpronounceable. Dr. Ferdinand Cohn's description and classification is by far the best—yet with all his apparent accuracy, it requires long and close study to find the organisms as he has placed them. If investigators would give the amplification with these plates and culture fluid, there would be little or no trouble in making out and reproducing the forms as described and plated.

As it is necessary to refer to the species connected with this subject further on, we submit Cohn's classification. He gives six genera, as follows:

- 1st. Micrococcus—ball or egg-shaped bacteria.
- 2nd. Bacterium—short, rod-like.
- 3d. Bacillus—straight, fiber-like.
- 4th. Vibrio—wavy, curl-like.
- 5th. Spirillum—short, screw-like.
- 6th. Spirochate—long, flexible, spiral.

Of the first he gives six species:

"	"	2nd	"	"	4	"
"	"	3d	"	"	2	"
"	"	4th	"	"	2	"
"	"	5th	"	"	3	"
"	"	6th	"	"	1	"

The species found in the mouth and about the teeth are the micrococcus, vibrio regula, spirochati plicatilis, bacteria termo, and leptothrix. Under certain conditions, when the teeth are for some time undisturbed with the brush, as stated in former papers, through advanced fermentation, other species are now and then seen, but those named are the species oftenest met with. At one time, before micro-

scopes were known, spherical coloring bacteria played an important role in the world's history. They were known as wonder blood, and when they fell on a slice of bread or cooked sliced potatoes, and gradually spread over the surface it was considered a bad omen, and frequently priests and witches, preying on the superstition of the ignorant and wealthy, made these blood spots, as they called them, the source of much gain. Cohn, in referring to these spots, says: "It has long been a saying, that suddenly, from time to time, a drop of blood would form on food, and especially on bread, and so increase that it would spread over wide surfaces. This was observed in ancient times, and it was held that it was a sign of threatened disaster, and showed the anger of God, disclosed secret guilt, and called for bloody atonement, and history records numberless sacrifices which, till recent times, were offered by the superstitious as often as this wonder of blood was seen on food, but especially if on the consecrated wafer.

With a century of enlightenment the blood wonder gradually ceased; but only within the last ten years do we know that the wonderful appearance had a scientific origin. It was Ehrenberg who first investigated this appearance of blood most carefully. It formed itself in moist air on cooked, not on raw food; on potatoes, rice, paste, also on flesh, milk and on white of egg, and that of itself without any one voluntarily causing it to be produced. At first it appeared as a very small rosy red or purple slimy drop, which grew to the size of a pin head and appeared like fish spawn; then it flattened, ran together, and formed a thick bloody slime. If one spread out the drop of gelatine-like substance on a fresh potato it would multiply rapidly, and it has with ease been increased to so great a quantity that it could be used for coloring; unfortunately this coloring material is not durable, being soon destroyed by light. Ehrenberg found in it the red, slimy numberless little oval bodies to which he gave the name of *Monas prodigiosus*; we designate them better as red spherical bacteria (*Micrococcus prodigiosus*). They nourish themselves on the albumen contained in the food on the surface of which they develop, decompose the same, and generate by a peculiar pigment fermentation the red coloring matter which possess a striking relation to that brilliant aniline color which at present time is of so much value to the dyeing industry.

In historical interest and in the mighty impression which it exer-

cised on the myth-forming fancy of the people, the wonder blood stands alone; as a physical phenomenon it shows a whole series of colors, which appear almost as a rule in moist places, on potatoes, cheese, cooked eggs and other foods; in appearance snow white, sulphur yellow, spanish green, violet blue or brown; all these colors which originate from spherical bacteria which under the microscope can scarcely be distinguished from the *micrococcus prodigiosus* of the wonder blood.

We give little more space to this part of our subject because little has been written on it, and acid advocates argue that the shades met with in carious tooth structure cannot be produced by bacterial organisms, whereas just the reverse is the fact, as all and every shade of caries can be readily accounted for and understood when we study the coloring power of the micrococcus found in carious dentine. By placing a few layers of sound dentine in a few drops of saliva and keeping it at a normal temperature a few days, nearly all the shades met with in caries can be produced.

Prof. Tyndall says, in his paper on floating matter in the air, that fifty per cent. of ordinary floating dust is organic. This being the case it is easy to understand how a speck of living matter can enter the mouth and, finding a home in a pit-fissure, or some unmolested locality, can propagate and, entering the mesh tubules, either directly or by fermentation, bring into existence other species that absorb the bioplasm in the mesh work of the dentine, for all investigation goes to show that these forms live at the surface of the substances on or in which they are found; and as they are found in the tube cells of the dentine in large numbers, and particularly where caries is in rapid progress, it is reasonable to connect them with the cause. Perhaps we can better understand this by filling an ounce bottle with sterilized matter. If this is properly done and hermetically sealed, the matter will remain forever, or as long as the seal is hermetic, without change; but if the seal is punctured with the finest needle or wire, air germs enter and other forms follow within a few hours. In speaking of fermentation we do not allude to the ordinary known ferments, for there are changes in all matters undergoing this process before any ferment known sets in. Pasteur, as far as he goes, is perhaps the best authority on fermentation, but he says nothing of the organic change before alcoholic fermentation. It is by no means necessary that *mycoderma aceti*—the ferment organism of acetic acid—should be

seen before bacteria enters the mesh tubes. This is done before alcoholic fermentation, and even before mycoderma is seen; therefore organic action on tooth structure is apparently independent of acetic acid. It may be that in exceptional cases this ferment may help to open the gate through the enamel, but we have never seen a case where in the mouth this acid was of sufficient strength to do it. The experiments of Prof. Mayr and Dr. Spaulding stand as bulwarks of stubborn facts against such a theory, and until they are demolished and washed away there is little or no need of further defence. It is all very well to prate about acetic acid destroying or dissolving the lime salts and prove this by placing a tooth in vinegar; but that is out of the mouth, not in. Where there is a constant flow of saliva this acid has not time to generate sufficient strength to act on tooth structure. About the entrance of a carious cavity, which has been undisturbed for a few days, acid may be found, but never where the real battle is going on—where the dead and living meet at this border line, were it possible to show it, a fight could be seen between two sets of organisms, the invaders and the invaded, the one attempting to close their gateways with ossific plasm and the other by absorbing this plasm before calcification augments its force, and unless prevented by some outer force complete disintegration of the tooth is the result. Perhaps if we view a tooth as an amalgam filling a better understanding of what we mean or wish to convey may be had. The mercury holds the powder of which the filling is composed together, converting all into a hard homogeneous mass; force out the mercury and disintegration follows. Just so with a tooth; remove the mesh that permeates every part of both enamel and dentine and disintegration of tooth structure is the result. This is the *modus operandi* of bacteria. They absorb the bioplasm in the mesh which binds the hard and limy structure, leaving the lime salts disintegrated, just like the amalgam powder.

Now, let us sum up the evidence introduced in favor of bacterian action and see how we stand. Let us see if we have not enough facts to justify a stronger belief in organic caries by bacteria than by acids.

1st. Acids cannot produce the different shades met with in carious tooth structure, while by the coloring powers of bacteria all these shades can be easily accounted for.

2d. If acids in the fluids of the mouth were the cause, the enamel,

owing to its limy nature would be dissolved or equally attacked all over its surface, instead of here and there in obscure localities.

3d. In many well-authenticated cases where decay was in rapid progress, when acids were expected none were found.

4th. In many cases where decay is going on, bacteria are found not only in the fluids, but about the teeth and amid the carious structure.

5th. It is a well-established fact that seldom, if ever, does decay take place on a smooth, well-polished surface, either of enamel or dentine.

6th. The mode of attack is not that of an acid. A minute, slightly-colored speck or stain makes its appearance, and, penetrating the enamel, seeks the mesh work of the dentine; acids do not act in this way; the lime in the enamel would be most to their liking.

7th. If acids caused the trouble, the free use of alkaline lotions and powders and the filthy practice recommended by a few dental savants, of packing the teeth over night with chalk, ought to be beneficial if not effectual; but this has been tried, and we believe we express the opinion of the majority in saying it has failed to prove productive of any positive good. If caries were produced by acids, then every tooth before filling should be washed out with an alkali. This would be intelligent and rational practice, but instead of this many advocates of the acid theory use creosote and carbolic acid before filling, and use it just because experience teaches them that it is good.

8th. Observation proves that nearly all the numerous cases of recalcification are produced by some antiseptic, such as mercury, nicotine, or carbolic acid, as every practitioner of any experience has noticed. If we seek a cause for this we are led to but one solution of the problem. Such agents are auxiliaries, *and when brought forward hold the invaders in check while the invaded close the mesh gates with ossific plasm and by this wall of recalcification save the citadel.*

Since this paper was written and read we have seen Dr. W. D. Miller's able and interesting essay in the January number of the "Cosmos." He says bacteria penetrate beyond the line of decay, and that the bacilli and micrococci are found in large numbers far into the dentine; notwithstanding this, he rather leans to the acid theory. These forms being found in the mesh tubes of the dentine, we naturally ask, "How came they there?" "What are they there for?" "Can they live on nothing and increase in numbers?" There is but one way to answer these questions. We know these organisms are never found except where there is a change of matter or substance. They always live and increase at the sacrifice of the substance on or in which they are found. They enter the mesh work of the teeth either by spontaneous generation or through the agency of air-germs. We cannot for one moment believe in their equivocal origin, but believe, as often stated, they originate from air-germs. If this is so, the species plated by Dr. Miller must have developed from air-germs through some kind of fermentation in

the pit-fissures or the place of lodgment. But, according to Pasteur, the organisms, as described and plated, are not of a kind to bring on acetic fermentation. We have no doubt as to some kind of fermentation in the outer part of many decayed cavities, but further on, just beyond the line of decay, where the evil is being enacted, nothing is at work but organisms found and described. Therefore we cannot see why Dr. Miller, after proving the presence and action of bacteria, should doubt their work.

ARTICLE III.

PER-OXIDE OF HYDROGEN ($H_2 O_2$).BY A. W. HARLAN, D.D.S., CHICAGO.

The editorial on Carbolic Acid in the January number of the *INDEPENDENT PRACTITIONER* was a pleasant article to read, because so few of our dental journals are in the habit of publishing practical articles concerning remedies in use by dentists, and it goes without saying that such articles are greatly needed by the majority of practitioners, who are too apt to fall into the habit of using remedies without investigating their claims to utility or effectiveness for the end desired, which may be to antisept, to destroy, to alleviate pain, or to promote absorbtion, all of which it would be difficult to accomplish with one remedy. But such is the force of habit that many of our fellow-practitioners will still continue to use carbolic acid for the multifarious purposes catalogued in the article referred to. It is not so much for the purpose of commending the editorial that I write now, as it is to call attention anew to per-oxide of hydrogen as an agent for the treatment of abscessed teeth, and particularly for the treatment of blind abscesses. I have had an experience with it in almost daily use for a year and a half, and am better satisfied with it for the above purpose than any other remedy that I have ever used.

If the reader chances to have a case in hand where he does not wish to cut through the process and there is a discharge through the pulp cavity, if he will cleanse the canal and then apply a pellet of cotton saturated with Fromsdorff's per-oxide of hydrogen, using no force, he will immediately see the liberation of oxygen which will combine with the pus or watery discharge, thinning it, until there will be a complete drainage of the sac beyond the apical foramen; then, as oxygen in its nascent condidion is an antiseptic, he will understand that it has been brought in contact with the walls of the sac, which is just what is demanded. Per-oxide of hydrogen is not an escharotic

or an irritant. I use the volatile extract of eucalyptus as a dressing for the canal, inserting a shred of cotton fiber moistened with it, and stop the canal with a pellet of cotton dipped in dissolved gutta percha. I do not seal the cavity tightly, because I wish to leave a vacuum, in case I have not thoroughly applied the per-oxide. In three days the dressing is to be removed, and if there be any discharge from the sac the treatment must be repeated; if there should be no discharge, which is frequently the case, fill the canal with shreds of cotton dipped in the eucalyptus, and seal the cavity of decay with gutta percha firmly. After a week or ten days have elapsed the pulp canal may be filled in the usual manner. The rubber dam is to be applied to the teeth during the whole series of dressings; no saliva, alcohol, carbolic acid, or other medicament is to be used within the canal or permitted to have access to it. The per-oxide may be injected through the pulp canal if there is a fistulous outlet, and the apex of the root filled at once, and if there is no carious or necrosed bone around the point of the root, the abscess will heal in a few days.

Per-oxide of hydrogen should be protected from the light, and kept in a glass stoppered bottle in a dark corner. I have used small quantities from several manufacturers, and have found none so satisfactory as H. Fromsdorff's, manufactured in Erfurt, Germany. It is a valuable remedy applied locally in moquet ostitis, and for injection into the antrum. When an antiseptic is called for, I have made use of it in all the above affections with excellent results.

ARTICLE IV.

PRACTICAL HINTS FOR DENTISTS.

BY J. A. ROBINSON, D.D.S., JACKSON, MICH.

The greatest Teacher the world has ever known said on one occasion to a sinner, "Go thy way and sin no more." There is no evidence that the command was obeyed, but the accusers of the woman went out until there was none left to accuse. The probability is that all the parties were benefited by the saying that was spoken by the man who spake as never man spoke. The three greatest sinners in dentistry to be treated by the method laid down by the great Teacher, are tooth extraction, amalgam fillings, and artificial dentures on rubber. It is very evident

that there will always be sinners in the world, and the great thing to learn is, what it is best to do with them. The sinners of the world are really more useful than some of us at first thought are willing to admit. The veriest vagabond may be an expert swimmer and save a child from drowning. It sometimes happens that the most worthless wretch in all the community saves the lives of men and women from a great conflagration. If we can utilize an evil it is no longer an evil. Strictly speaking there is no positive evil in the world, but as the excess of fire is a conflagration, the excess of the soft wind a tornado, the excess of blood in any portion of the body a congestion, plethory and death, so the very ills of life stimulate us to exertion to overcome those ills, as the abuse of amalgum stimulates us to the endeavor to find a substitute that is less injurious. The sting of a toothache leads to an attempt to cure the pain, and the excruciating torture of inflamed tissues, pent up within the hard structure of a tooth, being, as Burns has said, "The hell of all diseases," has made us what we are as a profession, and is stimulating us to try to convince the world that it is better to endure the ills we have than fly to others that we know not of.

The world must be taught that there can be no artificial substitute which can completely fill the place of that which nature has provided for us.

To save is to preserve from injury of any kind; so we cannot save any person or thing without doing that person or thing good. The highest function of the dentist is, therefore, to preserve the natural organs, and, when that is impossible, to utilize the imperfect things we have, and to substitute more perfect things as time and experience shall lead us up to higher excellence and attainment.

All amalgamated metals are so far failures, but they may be made less so by manipulation and by neutralizing the evil properties as far as possible. That mercury is necessary to form an amalgam with silver is patent to every practitioner. That mercury will not amalgamate with platinum is, I believe, a conceded fact; hence all amalgams having a combination of platinum are in no way benefitted by it. The platinum occupies space that could be better filled by some metal that would chemically unite to form a more homogeneous mass.

Tin foil is recommended and frequently used to take up the superabundance of mercury, but the use of a plugger of pure tin to pack the amalgam is better, inasmuch as you can begin to take away the mercury from the amalgam when the cavity is but partially filled.

After using, the point of the tin plugger can be heated and the mercury partially sublimated. When the end of the instrument is so thoroughly amalgamated as to be useless, it may be broken off and reshaped with the hammer, and thus made fit for a new career of usefulness. I have some made of equal parts of tin and silver that answer a good purpose. They are more rigid than tin alone, and in that particular better. Imbed a large size plugger in moulding sand and cast one for yourself and try it.

All rubber plates, from some cause not yet determined, produce an inflamed condition of the mucus surface of the mouth, and any invention or discovery that will preclude that condition will be a lasting benefit to the profession, for rubber has too many good qualities to be abandoned if it be possible to use it without positive injury. The method of making such plates is disagreeable and dirty, and the task is at best an irksome one.

A convenient way to warm rubber for packing is to heat it on the chimney of a kerosene lamp. It will stick to the chimney, while the heat can be easily regulated so that the danger of injury to the rubber from overheating is readily avoided.

Provide a box, into which place a mixture of one pound of soda bicarbonate for every two quarts of pine sawdust. When a flask is removed from the vulcanizer place it in this, and with a dampened shoe brush clean it before opening. Any stains upon the hands may be removed by washing them in the same mixture. A piece of a newspaper makes a very convenient holder when handling the flasks.

If the vulcanizer leaks steam, cover the packing with a thin coat of stove-blackening made into a paste with water. This will last for years if the vulcanizer be in constant use.

Anything prematurely done is not well done. The extraction of comparatively sound teeth under the pretense that they would not last long at any rate, and must be eventually lost, is a crime against humanity.

IODOFORM FOR ASCARIS LUMBRICOIDES.—The *St. Petersburg Med. Woch.*, December 30, 1882, says that Dr. Schildowsky has employed iodoform successfully in three cases of ascaris, and recommends that a further trial should be given of the remedy. He gives to an adult one grain with ten grains of bicarbonate of soda three times a day, and a quarter of a grain to a child.

Original Translations and Abstracts.

AN OPERATION FOR PYONEPHROSIS.

Operative interference in surgical diseases of the kidney has been attended, since the time of G. Simon, with such favorable results, technically speaking, that the indications for such interference have been widely extended; so widely, indeed, that the *healthy kidney* has been extirpated under certain circumstances.

[For a case in point see the January number of THE INDEPENDENT PRACTITIONER, page 12. Ed. L. H. H.]

On the 31st October, 1882, I was called by Dr. Maltzky to see a woman, æt. 34, confined to her bed by intense pain which made movement impossible.

The patient stated that, up to four weeks previous, she had been well, except "that she had felt something" in the left lumbar region that had given her slight discomfort since early youth. She also noticed that she was forced to micturate very frequently. The urine was always cloudy, and stunk after standing a short time.

Menstruation regular; twice married; sterile.

Four weeks previous, violent pains commenced in the left side, accompanied by marked febrile symptoms, so that she was forced to take to her bed. The temperature underwent morning remissions and evening exacerbations up to 39 degrees (102.°1 Fahr.) Patient well nourished and robust.

The results of an examination under anaesthetics were as follows: the left side of the abdomen was markedly distended by a tumor, somewhat ovoid in form, the long axis running from above and outwards, downwards and inwards. Vertically, it filled all the left side between the margin of the ribs and the iliac crest. At its lower border it reached the symphysis pubis. The internal border of the tumor extended two inches to the right of the mesial line. The mass was exceedingly elastic, fluctuating only at its centre. Concerning mobility, nothing positive could be ascertained either when the patient was supine or when she lay upon the right side. The percussion note over the tumor was dull; but along the edge of the ribs and near the pelvic brim it was bounded by a zone of tympanitic resonance. In the lumbar region it was dull-tympanitic. The lower, elastic, fluctuat-

ing portion of the tumor could be felt through the vagina. We could make out no connection between the genital organs and the tumor. The uterus was antiflexed and freely movable. The urine for twenty-four hours amounted to 1800-1900; cloudy, ammoniacal, the purulent sediment showing, macroscopically, small, whitish granules.

A *microscopical examination* revealed a *débris* of large epithelia, apparently from the pelvis of the kidney, commingled with an amorphous detritus wherein were recognized multitudes of bacteria and a few pus corpuscles. The macroscopic whitish granules consisted of a conglomerate of epithelia and detritus, incrustated with calcic phosphate. The filtered urine contained large quantities of albumin.

There was nothing abnormal in the thoracic viscera. The absence of cardiac hypertrophy or dilatation is to be especially noticed.

From these data, there was no doubt but what we had to deal with an enormous pyonephrosis and that the removal of such a condition was necessary to the life of the patient. From the history we learned that disease of the left kidney had existed from youth; from urinary analysis we concluded that, in all probability, since products of this diseased process still reached the bladder, there could be no question of any complete closing of the ureter. For, had there been no communication between the left kidney and the bladder, then all the morbid urinary ingredients must have come from the right kidney. This would mean an intense pyelitis on that side, and of this we could not find the slightest evidence in our patient.

I concluded not to extirpate, but to make a fistulous opening from the pelvis of the kidney through the abdominal walls.

Operated on November 2nd.—Abdominal incision 10 ctm. long, following a line from angle of the eleventh rib to the centre of a line joining the left iliac spine and navel.

This cut opened the peritoneal cavity. I should have liked to carry the incision further back toward the axillary region so as to incise the tumor from the extra-peritoneal side, but I was forced to carry the cut thus far forward, since fluctuation was distinct at this point alone.

Upon opening the abdominal cavity, we saw, at the inner margin of the wound, the colon descendens which passed down over the anterior wall of the tumor.

The boundary of the parietal peritoneum upon the anterior surface of the mass was 4 ctm. beyond the outer lip of the incision. After

pushing the descending colon in toward the median line, and underneath the inner border of the wound, I put in two strong sutures through the latter and the tumor, whose tension kept the peritoneal cavity closed above and below.

Then I thrust a long, curved trocar into the kidney, from which immediately flowed a large quantity of stinking purulent fluid.

After the flow ceased I dilated the opening on both sides (about 3 ctm. each), parallel with the abdominal incision, thoroughly washed out the renal sac with thymol water, carefully cleaned the peritoneum, and, finally, sewed the edges of the cyst's wound to the lips of the abdominal incision, the sutures embracing the parietal peritoneum.

The tumor was freely movable, but did not collapse as I expected; and despite repeated washing out, till the thymol water flowed away perfectly clear, a thin stream of purulent fluid still continued to ooze from the lower part of the incised cyst. This led me to the supposition that I had incised *not* the pelvis of the kidney, but an enormously extended cyst of a calyx. This supposition became a certainty when, on inserting my finger, *not such a calyx as would have existed were there a dilated pelvis*, but only an opening the size of a lead pencil was discovered. The latter opening afforded a communication between the pelvis of the kidney and the cyst I had just opened.

The operation concluded with the insertion of two drainage tubes, the wound being dressed with iodoform. The subsequent condition of the patient was encouraging. No trace of fever or sign of peritonitis showed themselves. The temperature on the evening of the day of operation was 35 9-10 degrees C. The urine, drawn by the catheter, was first clear and acid in reaction; but toward the close of the act pus flowed with the same stinking odor of that drawn off at the operation. This proved that there was a free communication between the bladder and the affected kidney. Next morning the temperature was 36 9-10 degrees; the pulse 84; the patient comfortable after several hours of quiet sleep; urine acid, and almost clear. That evening temperature 35 degrees; pulse 84; 1,200 cubic cent. of urine for twenty-four hours. Gave a hypodermatic injection of morphia that same evening, since the patient had a desire to go to stool. Next morning (Nov. 4th) I found the patient greatly altered for the worse. Though the temperature had remained at 36 9-10 degrees, the pulse had risen from 84 to 128, and the respirations were increased to 36. There was slight somnolence. The face was pale and like that of

collapse ; now and then slight convulsive movements in the fingers occurred. At most the amount of urine was 200 c.c. The body was anæsthetic ; there was no vomiting. In the evening the patient was comatose ; pulse scarcely perceptible ; hurried breathing and suppression of urine were followed by death. As a cause of the fatal issue peritonitis had to be excluded ; while uræmia was clearly evidenced. The autopsy revealed the following : lungs pale and extensively œdematous ; heart small from imperfect development of the walls and papillary muscles. Maximum thickness of the wall of the left ventricle 11 mm ; color brownish. On opening the abdomen a *perfectly normal* peritoneum was found. The descending colon, running directly downward from the free margin of the ribs, was found pushed far forward and toward the mesial line by a tumor in the retro-peritoneal tissue in the region of the psoas. The colon adhered to the median lip of the wound made at the operation.

The *left kidney* was transformed into an immense tumor, which had developed between the layers of the meso-colon, which it had separated from each other in its growth. With increase of the tumor, the outer layer of the meso-colon was pushed so far forward that it was a finger's breadth to the side of the outer edge of the wound. This line also formed the lateral boundary of the peritoneal covering of the tumor. The capsule was, along with the neighboring connective and adipose tissue, converted into a thick, tough, cicatricial mass. After dividing this tissue we endeavored to loosen the capsule from the kidney, which could not be done without tearing the renal parenchyma, so adherent was it in spots. The kidney, loosed from the adherent capsule, consisted of a flaccid, very thin walled sac, 18 c. in length and 7 c. in breadth. The remainder of the parenchyma was friable, yellowish in color, and at points had undergone fatty degeneration. The ureter was normal in calibre—showed no obstruction from pelvis to bladder. On section of the kidney there flowed a considerable quantity of purulent fluid. The pelvis of the organ, into which an opening was made at the operation, was somewhat dilated, but the calyx, which freely communicated with the pelvis, was transformed into an immense cavity whose walls were intact. Thus the kidney formed a kind of multilocular cyst. Now, I saw that my incision did not open the pelvis of the kidney, but the cystic calyx, which latter communicated with the pelvis by an opening the size of a cherry pit. The in-

sertion of the ureter was slit-like and lay in the anterior wall. When the ureter was cut longitudinally, its posterior wall appeared as a prominence, as a valve, in the lumen of the pelvis. The *right kidney* was very much diminished in size and showed well marked granular atrophy; size $8 \times 3\frac{1}{2}$ cent. Its pyramidal portion was especially decreased from hydronephrotic distension of the pelvis of the kidney. The ureter was perfectly normal in its course and in its place of insertion. It measured $1\frac{1}{2}$ cent. in diameter. The bladder was normal in size; the mucous membrane showed only a few pigment spots. Three intramural fibroids the size of a cherry were found in the uterus. The remains of an old peritonitis were found in adhesions between the left ovary and the sigmoid flexure. None of these lesions interfered in any way with the ureters. The liver was small and very flabby; the parenchyma exceedingly clouded as if cooked. The spleen was small, flaccid, atrophied, and its capsule wrinkled.

[Concluded in April Number.]

ABSTRACT OF DISCUSSION OF THE TREATMENT OF DECIDUOUS TEETH.

DR. FIELD—The one principle that particularly underlies the salvation of deciduous teeth, and at the same time the one most embarrassing circumstance to be met, is the treatment of the pulps of those teeth. The process which nature has provided for their removal is by the absorption of the roots, and the following of the permanent teeth through underneath them. The question therefore arises, are the roots of the deciduous teeth absorbed in cases where the pulps are dead? It has been asserted that they are, and also that they are not. I think Dr. Brophy has studied the pathology of this class of cases, and I would like to hear his views upon that subject.

DR. BROPHY—In my opinion teeth which have lost their vitality are incapable of being absorbed. They may become disintegrated the same as any of the osseous tissues. The cementum may lose its form by a process which we call caries or necrosis, and the dissolved calcium salts may find exit, or possibly be taken up. We know that bones are frequently lost through necrosis followed by liquefaction and gradual absorption. It has been said that it is impossible for nature to remove a dead part by absorption. That, I think, is not

true, because we know our bodies are being constantly repaired and renewed and replaced, the old tissues being absorbed. I think then that the roots of deciduous teeth, when devoid of vitality, are liquefied, as in cases of necrosis, gradually broken down and taken away by the absorbents.

There are other matters pertaining to the treatment of deciduous teeth that I might speak of. Sometimes decay commences as early, in the incisors, as the first or second year. I think the better way to treat these cases is simply to separate the teeth by means of a file, cutting them so they may be free, in the manner recommended by Dr. Arthur. This insures a thorough cleansing. With the teeth of my own children I have resorted to that method. One little girl, now seven years old, had caries commence between the central incisors when she was about a year and a half old. I made free separations at that time, and the teeth are now no more diseased than they then were. There is some caries, but the teeth still remain. The great point is to get them so that they will cleanse themselves freely. Now, as to filling cavities in the teeth, the pulps of which are alive, I have good success in using gutta percha. I have also used amalgam, but I have objections to that. Tin or phosphate of zinc are excellent materials, where the cavity can be thoroughly cleansed and dried. In cases where deciduous molars are somewhat decayed, I would pursue the same treatment, making free cuts, so that the apex of the V shaped cut will be at the bottom, and the broad base at the top, in lower teeth, and vice versa in the upper. I speak only of the temporary teeth in those cases. It is very important that a systematic brushing of the teeth should be begun very young.

DR. HARLAN—We are all aware that the absorption of the roots of deciduous teeth is a physiological process; that there is an absorbent papilla in connection with the root and over the tooth that is absorbed. If the papilla of the tooth has been destroyed it is not possible that true absorption follows. In other words, it would seem that the absorption of a pulpless deciduous tooth is not possible. Another error that has formed a part of some of this discussion is that the incoming tooth produces absorption. I think there is no gentleman present who has not seen an incisor, particularly of the permanent set, come on the inside or outside of a deciduous tooth. This would show that no absorption has taken place. That one fact pretty clearly demonstrates that it is not pressure which produces absorption,

because in instances of that kind where the permanent tooth forces its way through on one side of the temporary tooth, there is a great amount of pressure. The late Dr. Dean, of Chicago, has investigated the process perhaps as thoroughly as anyone, and his conclusions are something like what I have stated. There can be no absorption; that there is liquefaction I believe. Dr. Spaulding, of St. Louis, claims that he has filled the roots of deciduous teeth with gold, and afterwards found the little spiculæ of gold projecting into the soft surrounding surface without irritation, when he extracted the teeth. He is the only one who ever claimed that. No one has ever contributed anything to the literature of the treatment of deciduous teeth analagous to it. I shall not dispute it, but I should like to see it. Now, if the pulp of a deciduous molar tooth be destroyed at six years of age and the root filled, the tooth being extracted a year or two later, there would undoubtedly be an excavation in some one of the roots, which would show that there had been an absorption; but that absorption would have taken place previous to the destruction of the pulp. As in fractures of the maxillæ and other accidents, where teeth have been knocked out at those stages, the results of absorption can be seen. It is thus demonstrated that the process of absorption begins very early, as early as the sixth year in the first temporary molars.

DR. TAFT—The question has been raised, "Do the roots of pulpless temporary teeth ever become dissolved away?" Yes; they do become dissolved away, even though the pulp may have been destroyed, whenever the absorbent papille below has not become deteriorated by the debris of the decomposing pulp. If this little tissue, which is in the main independent of the pulp of the temporary tooth, retains its integrity, in a healthy condition, it will go on dissolving away the ends of the temporary teeth, no matter whether the pulp is there or not. But the result would be, in a great majority of cases, that the debris resulting from the death of the pulp would be sufficient to produce disease in, or wholly destroy this little body, and so prevent its further working for dissolution of the roots. I think it is uniformly true that in all cases where inflammation takes place, the function of this body is either very seriously impaired or entirely destroyed.

But are the roots of temporary teeth sometimes dissolved away, even under such circumstances as this? Yes; and sometimes the roots of permanent teeth are dissolved away. They are sometimes

honey-combed; they are sometimes dissolved more or less at the end. Occasionally I have seen one-half of the root of a permanent tooth dissolved away, though not by the same process, by which a temporary tooth is dissolved. By a diseased condition, in which the elaboration of a solvent takes place, the root is dissolved away. The same thing takes place with the temporary teeth, but it is a natural physiological action, and not the process that takes place upon the roots of permanent teeth where a sinus forms around them.

As to the treatment of temporary teeth I wish to say a few words. The permanent teeth are influenced somewhat by the forces and processes which act at about the period when the roots of the temporary teeth are taken away. A temporary tooth may have a serious effect sometimes upon the permanent tooth which succeeds it. Sometimes the crown of a permanent tooth will appear with the enamel roughened all over its surface, and sometimes dissolved. Sometimes you can scrape off the enamel, it is so nearly dissolved. These conditions are always due to the failure in the developing process. This absorbent papilla, this carneous body, is diseased, and its utility perverted or destroyed altogether. The crown of the permanent tooth, therefore, comes in contact with the root of the temporary tooth, and so this roughening occurs.

DR. BARRETT—The idea so very frequently expressed in all the medical works that the eruption of the teeth, during the period of dentition, causes such irritation and derangement of the whole digestive system is, I think, an erroneous one. In health the eruption of the teeth is a perfectly physiological process. It should no more effect the general condition of the system than the growing of one's finger nails. It is entirely physiological. Why is it then that people are particularly liable to stomach diseases just at that time? Because it is between hay and grass with the child, to use a common expression. It is just at the time when the digestive organs are undergoing a change from that simple pabulum for which they were primarily adapted, to a grosser, heavier diet. During this change children are peculiarly liable to gastritis and derangements of that kind. This is not caused by the eruption of the teeth. It comes from mal-nutrition, indigestion, or other nutritive disturbances. The irritation caused by the eruption of the teeth has no more to do with it than the growing of the hair upon one's head. I believe that there is a hundred times more injury done by the cutting of the gum than by

leaving it alone. If the child is in anything like a healthy state there is no trouble about its teething. When there is sufficient pressure upon the gum there will be absorption, and the tooth will come through easily. In cutting, nineteen times out of twenty, and I don't know but oftener, it is done at the wrong time, and a cicatricial tissue is formed which only increases the difficulty in the eruption of the teeth. If I ever did cut the gum at all, I should slip the point of a pen-knife under it and cut upwards and outwards; I have seen children that were extremely ill, nearly in convulsions. I remember one particular case where I felt very confident that the cutting of the gum would relieve the difficulty, because of the extreme apparent tension. I had read so much about the pressure producing convulsions. So I used the lancet, but it did not do any good. It was simply a case of indigestion or gastralgia. The cutting of the gum was not of the slightest benefit to the child.

DR. BROPHY—I disagree entirely with what Dr. Barrett has said in regard to lancing of the gum. Furthermore, I am surprised that he should state, as a physiologist, that the breaking through a cicatricial tissue is far more difficult than breaking through ordinary tissues. A cicatrice in all cases is the most easy and yielding of any. A cut which has healed is a great deal more yielding than the original tissue. Even if the gums do heal up and a cicatrice forms, cut them again and relieve the parts of the blood. I am convinced that the pressure upwards by the teeth against the tissues produces a disturbance of the nervous system, and that is what brings about the trouble. That this simple operation on the gums has been productive of a great deal of good and saved the lives of hundreds of children, I have not a particle of doubt.

DR. BARRETT—I cannot subscribe to the idea that lancing the gum removes all the difficulties connected with dentition. If you are going to cut for the sake of depletion I will agree with you; but as to performing this operation as a cure for stomatitis, gastritis, etc., I do not subscribe to that. The trouble has its origin back of the inflammation and irritation, in those diseases and disarrangements of the stomach which produce convulsions and death itself in some cases.

DR. TAFT—Cases of difficult dentition have been referred to. It is from disturbed functions that the trouble arises. If the growing tooth comes as it should, and is properly supported in its growth, if

the way is prepared for it as it advances, there will be no difficulty in the way of dentition later. The trouble is that there is a defect in nutrition, a disturbance of some sort. Usually the great difficulty is produced by pressure upon the nerves in the parts pressed upon. Now, I do not presume that the actual pressure of the tooth is the normal means of preparing its way. I think the normal process should be independent of the pressure of the teeth. I do not think the tooth struggles through the surrounding tissue. I think the tissue is absorbed away in anticipation of the coming of the tooth. The gum affords but little resistance when everything is in a healthy state, for by a physiological function the way is prepared. If there is any disturbance of this process, then the tooth comes in contact with the tissue and pressure is sometimes the result as we know. The irritation consequent upon the failure of this work of preparation may result in one of two ways. The pressure of the teeth may produce irritation and inflammation. The pressure in the blood vessels may operate to produce a nervous disturbance through the parts. That is one way in which pain is produced. Another way, and a more serious one as it seems to me, is when the pressure becomes greater, and the blood is forced out of the vessels. Then the pressure upon the parts is materially augmented. In such cases there will be more frequent reflex nervous influence exhibited one way or the other, on the brain, the stomach, the digestive apparatus or some other.—*Transactions Michigan Dental Society.*

CHARCOT reports some very interesting cases of "Hysterical Contracture of Traumatic Origin" in *Le Progres Medical*. One of his patients at the Salpetriere was a delicate girl of sixteen, whose father had died of general progressive paralysis. One of her father's brothers was almost an idiot. This, Charcot thinks, shows very well the neuropathic "heredity of transformation," i.e., the ancestors having suffered from nervous diseases other than, but allied to hysteria. This girl's left hand exhibited flexion of the first phalanges upon the metacarpus, the fingers being tightly squeezed together. This deformity had been permanent for one year. It was due to simple muscular rigidity. The left hand was colder than the right, and had a bluish tint that evidenced vaso-motor disturbance. Over a year ago she had

an insignificant cut on her hand that healed in four or five days, and the patient having what may be termed a *contracture diathesis*, the above deformity resulted. When this diathesis exists even sudden movements, such as throwing a stone, are followed by contractures very marked and obstinately resisting treatment. Moreover, this girl had left hemianalgesia with left sensory hemi-anæsthesia ; and by excluding the existence of cerebral lesions, alcohol or lead poisoning, it was left us only to regard it as one of the many manifestations of purely classical hysteria.

Selections.

REMARKS ON THE PATHOLOGY AND TREATMENT OF THE PNEUMONIA OF EARLY INFANCY.

I desire to submit for your consideration to-day some remarks on the pathology and treatment of pneumonia as it occurs in the first six months of infancy. All medical men are fully aware of the great mortality attending this affection in early life, and thoroughly appreciate the difficulties in the way of its successful treatment. Statisticians inform us that one-third of all infants born alive perish before they reach the fifth year of age. This is an enormous rate of mortality, and pneumonia is certainly responsible for a very considerable proportion of it. Indeed, in point of mortality it will rank with most of the grave diseases of infancy, and in an equal degree deserves our serious consideration.

There is an impression abroad that medical men do not comprehend clearly and scientifically the diseases of infancy and their treatment, but depend very much upon mere personal observation and experience, and trust to good fortune for results. It may be that we do not attach due importance to these apparently trivial matters, not reflecting on the vast influence which these questions must exert on the future progress of our race. It is from this embryo material which we visit and prescribe for in our daily rounds of professional duty that springs the splendid man, with all his varied attributes of intellect, whether it takes the direction of oratory, science, poetry, art or military heroism, and lovely woman, but little less beautiful in character and person than the angels, with all of her purer and better

instincts exerting that refining and elevating influence on our moral natures which no other earthly power but woman can.

One of the missions of our profession, and a duty imperative on us, is to do all in our power to lessen this fearful rate of infantile mortality. One of the great needs of our Southern country is a population sufficient in numbers, in health and vigor to develop our magnificent resources, and build up our important interests. If we now had that superb element of population which was sacrificed in the late war, we would need nothing further to restore us to prosperity.

But it is a most gratifying reflection to know that our knowledge of the pathology and treatment of infantile diseases is constantly and steadily advancing towards a plain of more thorough scientific accuracy. I can observe marked changes in these respects for the better in the past twenty years. Yet, this department of our profession is still far from being complete.

Forms of pneumonia common in infancy.—There are two forms of pneumonia to which very young infants are more particularly subject—the lobar and catarrhal. While *lobar* pneumonia in the infant does not materially differ from that in the adult, in my experience, the attending râle is rather coarser, and more on the sub-crepitan order, and the dullness on percussion is not as complete. *Catarrhal* pneumonia—formerly existing under the names of suffocative catarrh and capillary bronchitis—is the most common to which infancy is liable, and the most dangerous to life, as it usually involves both entire lungs. In such cases the secretion of mucus is so rapid, and its accumulation so extensive as to cut off very speedily all ingress of atmospheric air into the air cells. Hence, at a very early stage of these cases we observe the manifestations of carbonic acid poisoning, or cyanosis, and a disposition to drowsiness. I have seen cases threatened with suffocation in twelve hours after the onset of the disease.

In proportion to the accumulation of carbonic acid in the blood, the disposition to narcosis becomes profound, so that the infant appears as if suffering from a poisonous dose of opium. I saw, on one occasion, a little infant of only a week old with catarrhal pneumonia, which presented a complexion almost like indigo. The tendency of carbonic acid poisoning is not only to cause sleep, but also to suppress cough.

The character and rate of respiration.—Probably in no other disease

does the respiration rate reach so high a standard as in the pneumonia of early infancy. I am very sure that I have seen in an infant a few days old, with pneumonia, the frequency of respiration reach one hundred per minute. In proportion as the air cells and bronchioles fill with accumulating exudation, the inspirations become shorter in duration and interval, and, of course, the respiratory acts are more frequent and less efficient. In these very grave cases of infantile pneumonia, the acts of respiration become so rapid and short that the inspired air, to the observer, does not appear to penetrate more than one-third of the lungs. We often hear adult patients with serious pectoral affections use the expression that they could inhale the air to a certain point in the chest only, denoting precisely the line of demarkation between the sound and diseased tissue. This is literally true of all chest affections causing obstruction. No sooner does the inspired air enter the cells than a decided sense of relief follows, and the chest walls expand in corresponding degree. If we expose the chest of an infant suffering from extensive catarrhal pneumonia, it will at once be observed that the walls around the bases of the lungs are not expanding as they should do, but that the muscles of the apex of the chest, also those of the neck and back, are thrown into an extraordinary state of action by the powers of volition, for the purpose of still further dilating the lungs.

The character of cough in infantile pneumonia.—In proportion to the extent and gravity of pulmonic disease, the attendant cough will diminish in frequency and force, and decline in aiding expectoration. A very serious danger to be apprehended during the progress of infantile pneumonia is the partial or entire suppression of cough. This may be brought about either by the effects of carbonic acid poisoning, or narcosis from the too free use of opium. Under these circumstances, the infant rarely voluntarily takes those deep inspirations which distend the lungs, aërate the blood, and excite cough and expectoration.

In this connection, I think it proper to state that in those cases where the cough is either suppressed or insufficient in promoting expectoration, it is my invariable custom to resort to artificial means for the purpose of stimulating that function. The agents used are decidedly antiseptic in character, and exert the double influence of disinfecting the accumulated matter in the bronchial tubes, and exciting these tubes to active contraction, and the expulsion of the offending

cause, to the great relief of the little patient. My habit invariably, in this class of cases, is to use every three or four hours, or even oftener if necessary, by means of a continuous spray-producer, a solution composed of

R.	Alcohol.....	3j
	Water.....	3ij
	Carbolic acid.....	3ss
	Bicarbonate soda.....	3j
	Salicylic acid.....	3j
	Chloral hydrate.....	℥ss. M.

The atmosphere surrounding the head and chest of the patient is to be charged with the spray of this solution as often as it may be necessary to excite cough and expectoration for a few minutes at each time.

The invariable result in my experience has been the restoration of cough and free expectoration, for the time being, with improvement in the breathing and complexion. By the persevering use of this device, I feel sure that on several occasions I saved the lives of children that would otherwise have been lost.

I remember, on a certain occasion, having for a patient a most interesting little boy of two years old, who had endeared himself to all by his exceeding brightness of character and amiability of temper. He was suffering from a fearful attack of double catarrhal pneumonia and whooping-cough combined. He suffered terribly for many days from suppression of expectoration and great oppression of breathing. The cough was very slight, and only occasional. There were crepitant râles over the entire of both lungs. The pulse and rate of respiration were exceedingly frequent, and the complexion of a dusky hue. For the purpose of restoring cough and expectorating, the atomiser was used freely every three hours, and at times oftener—not only with infinite temporary relief, but, I am convinced, with the ultimate result of saving the life of the patient.

To stand by the bedside of these helpless little creatures, suffering a fearful degree of agony from oppression of breathing, with a respiration of seventy per minute, and a pulse amounting to one hundred and sixty or seventy, and witness the relief afforded by the simple use of the antiseptic spray, is exceedingly gratifying.

Character and Rate of Pulse.—Dr. West says that it is unusual for the pulse in infantile pneumonia to reach one hundred and eighty per minute. Other authors, with the more accurate methods of calculating at present, say that it frequently attains a rate of two hundred,

and even two hundred and twenty-five in bad cases. The rate of the pulse and respiration never reaches these high figures in the adult. Hence, we have a state of affairs, so far as these questions are concerned, differing entirely from the pneumonia of the adult.

Now, the question is, what are the effects of these very high rates of the pulse and respiration on the progress of the case? During the very rapid action of the small and feeble infantile heart in pneumonia, each diastole is so brief and imperfect that very few drops of venous blood can be received into the right chambers of the heart at each pulsation. Thus, while the heart may be acting at the rate of two hundred per minute, each two pulsations are not equal in efficiency in propelling the column of blood forward through the circle, to one pulsation when the organ is acting at the rate of one hundred per minute. The practical result is the blood constantly tends to accumulate in the venous system, producing cyanosis, and its consequences, carbonic acid poisoning and narcosis, with labored breathing; while the arterial system, failing to receive its due share of oxygenated blood, induces the small, feeble and frequent pulse characteristic of this condition, with the extreme general prostration which always attends this state. The pulse in infantile disease not uncommonly attains a rate of frequency more than double that of health, and yet this may be followed by a complete restoration.

Medical men, from practical experience, well know how delicate the infantile system is, and yet how wonderfully elastic it is in its recuperative energies. The nervous system of children, whether volitional or sensitive, are exceedingly excitable. But the ganglionic system is intensely emotional, giving rise to that remarkable excitability of the heart which we see manifested in our daily intercourse with these little patients, elevating the pulse, even in slight febrile conditions, to a fearful degree of frequency, the violent impulse of the heart resembling that from hypertrophy, while every superficial artery in the body can be seen in violent commotion. This remarkable excitability of the varied component parts of the nervous system of infants and children, with their emotional tendencies, constitutes one of the most important considerations in the history and treatment of infantile diseases. These peculiar characteristics are prone to mask all other symptoms, whether of functional or organic disease, to such an extent as to obscure the real difficulty and mislead us in forming our opin-

ions. The extent of pneumonic inflammation which would elevate the rate of respiration to thirty and the pulse to one hundred and twenty in the adult, would, in the young infant, send the rate of respiration up to a hundred, and the pulse to the neighborhood of two hundred per minute. Taking the adult rates in these respects as our standard for guidance, the excessive rates above these in the infant must be regarded as attributable to the remarkable excitability of the sympathetic system of nerves peculiar to that period of life.

A knowledge of this fact in the treatment of infantile disease is of infinite importance. If we were to use violent or depletive means for these explosions of nervous force and excitability in the inflammatory diseases of infancy, we would simply induce a state of general prostration without removing the cause; whereas, if means are used to control this extraordinary erethism of the sympathetic system, and through these reducing the excessive cardiac and respiratory action, we at once bring the state of the system to a safe point for the resolution of the local disease.

The tendency to clonic convulsions in the febrile affections of infants is another example of explosion of nervous force and excitability in the volitional and reflex centres, as the great frequency of the action of the heart and respiration represents that of the ganglionic system.

Treatment.—With all our preconceived ideas of the prompt and vigorous measures necessary to subdue a violent attack of pneumonia in the adult, I confess to have formerly approached the treatment of this dangerous disease in the feeble and delicate infant, whose life apparently hangs upon a mere thread, with a considerable degree of misgiving. Since adopting the method which I now resort to in these cases, my practice has been far more satisfactory and successful than formerly.

The great and pressing objects to be accomplished for the speedy relief of the patient in these cases, are to disgorge the bronchioles of superabundant mucus, reduce frequency of the pulse and respiration, and at the same time sustain the strength of the heart and its force of action. Nothing should be done in this affection to impair the force of the heart's action. Fortunately for us, there are remedies at hand which will not only reduce abnormal frequency of the pulse and respiration, but will, at the same time, give tone and vigor to every pulsation of the heart. With these objects accomplished, and proper

sustenance of the patient, resolution of the pulmonary engorgement and inflammation will usually follow.

I cannot present a better illustration of the line of practice which I have pursued in these cases in recent years than by giving in detail the history of a case of double pneumonia, very alarming in character, occurring in a little infant only three weeks old:

When I first saw this case, the pulse was so rapid and feeble that I could not even approximate the rate, and scarcely detect it at the wrist. The respiration must have been nearly one hundred per minute. The complexion was completely cyanosed. There were universal subcrepitant râles throughout both lungs, and dulness over both bases. The chest walls, on inspection, scarcely expanded at all. No one supposed that the little creature could survive but a few hours. The family discussed the question seriously whether or not, the chances of life being so limited, it was justifiable to vex and annoy the infant with treatment. At my earnest solicitation, vigorous measures were put in practice, and the result was the saved life of a boy now several years old, and in the full vigor of health. A warm mustard bath was ordered to be used every four hours, to be followed by brisk frictions with a dry flannel. The patient was to take a teaspoonful of the following mixture every three hours, viz. :

R.	Liq. ammon. acetatis.....	3ii.
	Tinct. belladonna.....	gtt. xii
	Tinct. digitalis.....	gtt. xii
	Spts. ammon. arom.....	3iss
	Vin. ipecac.....	gtt. xvi
	Aquæ.....	3x
	Syr. acaciæ.....	3vi. M.

The antiseptic spray was also ordered every four hours. A few drops of good brandy were given with each dose of the mixture. Small dry cups were applied over the dorsal portion of the chest. The effects of this treatment in forty-eight hours were marvellous.

Of all those agents for slowing the excitable and feeble infantile heart in pneumonia, and reducing the high pulse rate down to the natural standard, and imparting vigor and tone to its action, digitalis stands first on the list. It has not the rapid and dangerous action of veratrum and aconite, but in the end is just as efficient.

I regard belladonna, used in connection with digitalis, as a most important element in the therapeusis of infantile pneumonia. In this connection it exerts a most soothing and quieting influence over the

irritable condition of the sympathetic system, not only aiding the digitalis in composing the action of the heart, but especially reducing the high rate of respiration, and thereby affording relief to the oppression of breathing. Belladonna is well known to exert a remarkable influence in curtailing superabundant secretion, whether from the skin, intestines or lungs.

I feel sure that this power is exerted in a very decided degree in gradually diminishing the excessive secretion of mucus in catarrhal pneumonia, and thereby preventing renewed pulmonary obstruction. It is one of the few agents in our possession which accomplishes this object without either suppressing cough or embarrassing the respiration, or aggravating the bronchial inflammation.

The mild preparations of ammonia are particularly valuable in liquifying viscid mucus and hastening its expulsion. As a sustainer of the exhausted and flagging nervous energies of the infantile constitution, it is almost invaluable in the treatment of this disease.

The wine of ipecac, in my judgment, should never be dispensed with in the treatment of the pneumonia of infancy. Whenever given in minute doses continuously, it acts as a potent promoter of expectoration, inducing contraction of the bronchial tubes, and the gradual expulsion of mucus.

In a most obstinate case of catarrhal pneumonia, in an aged woman, which resisted every known remedy, with constantly increasing severity of symptoms, accompanied by a very irritable stomach, in utter despair I determined to put the case on minute doses of ipecac wine—say two drops every three hours. In twenty-four hours there was marked improvement in the respiration and pectoral oppression, and in the freedom and ease of expectoration, with relaxation of skin. Under this remedy, slightly increased in dose, the patient entirely recovered.

We know now that ipecac exerts a very extended influence over the entire sympathetic and vaso-motor systems, and by quieting nervous excitement and vascular action, it controls hæmorrhage and regulates secretion. The combination of the alkalies—ammonia, soda or potash—with the ipecac, particularly the former, constitutes, in my experience, the very best of means for enabling the bronchial tubes to expel their contents in pectoral inflammations. Opium, when the moist râles are abundant in infantile pneumonia or bronchitis, is inadvisable and dangerous.

In forming an opinion of the admissibility of opium in these cases, we must be guided by the extent of tissue involved and the extent of râles present. If these are extensive, then opium must be discarded. The bromides here are specially applicable for quieting nervous restlessness and procuring sleep.

In lobar pneumonia, when the muco-febrinous secretion is very tenacious, I have used the iodide of potash, iodide of ammonia, spirits of ammonia and ipecac with the best effect.

Dr. J. E. Chancellor reported a case in his practice which confirms Dr. Brown's views.

THE CLOSE RELATION EXISTING BETWEEN, AND PROBABLE IDENTITY OF, SCARLATINA AND DIPHTHERIA.

The occult cause of disease, malaria, miasm, or whatever you please to call the poison, and how many different and modified types of diseases you will notice in that relation, viz., the different forms of intermittent, remittent and typo-malarial fever (the latter a misnomer), etc., etc., so different in their behavior and general symptoms that one would hardly think they had a common origin. But still the doctor will look wise, for he has been taught no better, and tell the patients—none of them showing the same symptoms in common—that they are all suffering from that mysterious, occult something called malaria, and probably he is correct. Look if you please at the more particularly infectious diseases, those that are not only spread by absolute contact, but by emanations from the body; the secretions, etc., are caught up in the air, and enter the circulation by absorption or inhalation, as germs, spores or bacilli, and thereby cause disease, and note the various forms and diseased conditions manifest in the different patients suffering from the same disease, with almost completely dissimilar symptoms, all supposed to have a common cause producing them, and how do doctors account for these seemingly contradictory manifestations? Merely the cases are modified by extraneous forces, the patient's surroundings and his physical condition. I need not point out in a particular manner these differences, because all present, if they will reflect one moment, will at once admit the force of the statements made; and that they have all, at some period of their professional lives, felt doubts as to the correctness of their forced conclusions. But if we simplify our theories, if we throw aside the

mysterious somethings—seen by the curious—“sometimes figments of the brain,” the germs, spores, etc., which are supposed to be specific, and are no doubt thought to be so in the original investigator’s office, but occult in practice, and which are left to the common honest plodding practitioner in his daily experience at the bedside, to approve or reject, for he cares but little about theories, but treats these diseases with good success, because he treats conditions and symptoms rather than names, and adopt the more rational theory, more in accordance with facts, that, *per se*, there are but few specific generic diseases, or groups of disease, and as in the vegetable kingdom the classes and genera are few, the varieties vast, so in the pathological field, then we shall more easily and fully comprehend the true causes of disease, and treat them more rationally and successfully. It requires no great reach of imagination or elasticity of our professional conscience to acknowledge the truth, that we are all more or less in doubt and at sea in reference to the real causation of disease, and that the theories piled up, plus all our doubts, multiplied by what we do not know, equals an amount of professional, negative and empirical truth, which should be a shame to the votaries of an exact science to acknowledge.

You are all familiar with the general characteristics, the course, etc., of the two diseases, so called, scarlatina and diphtheria. You know the general symptoms present in each, you can trace their analogies, you have learned their pathology, if not their etiology. The parts affected—the throat, the lymphatic glands, the skin, the mucous membrane and the general constitutional disturbance of the system. Now, keep all of these associated symptoms in your minds, the co-relation of facts and conditions in both, and can you not see that both diseases present many clinical phases common to each? I cannot, of course, enter into a detailed account of the varied symptoms and full clinical history which they present in their progress, or fully elaborate the subject, because it is too vast, wide and deep, for the time given me and my poor capacity to develop. But it shall be my province to present such facts as I can, the result of reading, observation and personal experience as will at least direct your attention to the subject under consideration.

During the year 1864 we had in our city an epidemic of diphtheria, so called by some practitioners; others claimed it was scarlatina. I then held to the belief that we had both varieties and forms of disease depending upon a common cause, because we had both the symptoms

and pathological conditions common to the manifestations of both forms of disease during the progress of the epidemic; sore throat with exudative deposits or false membrane, enlarged lymphatic glands, etc., with the characteristic eruption and without the eruption. We had in the same families the various sequelæ common to both forms of disease, viz., paralysis, acute rheumatism, dropsy and croup. Notably in one family, of which I have notes of the cases, two boys and two girls; one boy and girl had eruption on skin well marked and characteristic; the others had none; all had throat complication. The youngest died, from croup and two of the others had sequelæ; one had dropsy depending upon kidney complication, another had partial paralysis, while the remaining one had no sequelæ.

In Sir Thomas Watson's work on "Practice," etc., page 996, we find the following explicit statement in strong language: "The two striking and important features of the disease are the affection of the throat and the affection of the skin. They may both be well marked or only one of them may be well marked; and this circumstance has led nosologists to divide one and the same complaint into two different maladies, to which Cullen and others have assigned the respective names of *cynanche maligna* and *scarlatina*. When in the early part of the course I was treating of the diseases of the throat, I purposely omitted the *cynanche maligna*, because that is only a name for a particular form of scarlet fever. If you look at Cullen's definitions of these complaints, you will see how much alike they are. They both specify inflammation of the fauces, a cutaneous rash and fever. The truth is, that these two kinds of diseases both spring from the same contagious poison. "The malignant sore throat" (the same as putrid sore throat) "may be caught from a patient who has mild scarlet fever, and mild scarlet fever may, in like manner, be contracted from one who is laboring under malignant sore throat. The two forms graduate insensibly in different cases toward each other; and it would be impossible, even if it were desirable, to draw any strict line of separation between them." Further, on page 998, he holds: "As the disease proceeds, the throat becomes foul and sloughy, the parotid and sub-maxillary glands swell, sometimes enormously, and fever is lighted up afresh. The acrid matter furnished by the ulcerating and gangrenous throat—" "And this swelling of the parotids and neighboring glands is evidently caused by the absorption of the irritating and poisonous matter from the ulcerated and gangrenous throat."

Now, when we reflect that at the time the above lucid and graphic description was given of the real pathological condition of the throat, during the progress of scarlatina maligna, or putrid sore throat, since named diphtheria, you will at once see that the symptoms and diseased condition delineated could be none other than our present diphtheria, which was clearly claimed by the authority quoted as only a modified form of the cardinal disease, scarlatina. It seems that most authorities, even Professor Flint, after laboring to draw a line of distinction between the two forms of disease, still associate them together, and are in doubt as to the relation which they sustain to each other, whether distinct and cardinal, or whether the one may not be the result of the other. On page 817 you will find this language: "This boy had recently had diphtheria, the exudation in the fauces being abundant. There had been no eruption. After his convalescence, a sister was attacked with scarlatina, the rash being abundant. The boy had the characteristic sequels of both diphtheria and scarlatina, and there was ground for the suspicion that he communicated the latter affection to his sister." Not to be captious, probably if there had been another case in the same family—another child sick—the sister would have communicated diphtheria back again to the other member of the family. Interchangably, like the "shuttle cock," the disease could have been thrown "backwards and forwards" to suit the caprice of the observer.

Now I hold that the old fashioned putrid sore throat, pseudomembranous pharyngitis and diphtheria—rechristened by Dr. Bland, of New York, and more especially by M. Bretonneau, of France, in 1821, are one and the same disease, and that the disease has prevailed in epidemic form, at different times, and such times described by different writers, using different names, but mainly agreeing with each other in the symptoms and general clinical history of the disease, and that such clinical history given of diphtheria and scarlatina maligna, the parts affected, the general characteristics and course of the diseases would seem to be something more than a mere coincidence, and that probably and primarily they have a common parentage. Read Ortel on diphtheria and Thomas on scarlatina maligna, and note the similarity in the main features and clinical behavior of the two diseases, laying aside mere theories, long drawn out, detailing the results of many experiments of microscopic observations, the kind of spores seen, how they behave and what they do. After all, clinically

you can see such a strong analogy manifested in each grave form of the diseases, that mere theory as to their separate causation will not satisfy the common practitioner. And it would seem just as reasonable and just as practicable to maintain their common causation as to adopt the idea of the duality of their origin. For it seems to me that the recognition of a radical difference between diseases which possess strong points of resemblance and analogy, is a very delicate matter, and that the arguments in favor of such separation and division of causes, in reference to two grave diseases so similar in their character and analogous in their results, and demanding so nearly the same management and treatment. For certainly rather than amplify our nosology it would seem wisdom to curtail it. But so it is, that every observer who discovers a spore, or a bacillus must name a disease, and hence they multiply.

We now come to the eloquent and sagacious Trousseau, the great clinical teacher, who from his long experience, ample opportunities for clinical observation and research, would seem to be pretty good authority upon the subject under consideration. Vol. 1, page 149, in treating of scarlatina, says : "Has diphtheria supervened to complicate the scarlatina, and divert it from its proper course? The symptoms bear so strong a resemblance to the terrible forms of that frightful disease which carry off both adults and children before the affection has extended to the larynx, the false membrane still remaining localized in the nasal fossæ, ears and throat, the symptoms so much resembling the rapidly fatal forms of diphtheria that one is induced to believe that the case is no longer one of scarlatina, but that the other dreadful scourge has come to destroy the patient." "During my period of service at the children's hospital, I so often found such an extraordinary identity between the sore throat of malignant diphtheria that I became shaken in my opinion." Such are the conclusions drawn and opinions held by one who had great opportunities to observe the diseases in all their phases, and we see that he even expresses doubts as to the duality in causation of the diseases under consideration. To me it seems obviously absurd, and contumacious to strive to separate, and discuss propositions in reference to diseases where one seems to be, and is admitted to be, the analogue of the other. Certainly there is no reason why, when there are no improved suggestions as to the treatment resulting from the maintenance of the dual cardinal distinction in the causes of such diseases, put forth by different authors.—*Extracts from article by Dr. Hurd, in Detroit Lancel, February, 1883.*

PERINEPHRITIC ABSCESS.

This patient, Burk, age thirty-five years, as you see, walks with a limp. The left thigh is slightly flexed on the pelvis, and his body bent forward, inclining toward the left. He entered our ward a few days ago complaining of a dull, deep-seated pain in the left lumbar region. He dates the beginning of his present trouble as far back as last March, when he was seized with pain in the left side and groin, which pain did not leave him for four weeks. He further informs us that he has had repeated attacks like it, which come on suddenly, often with nausea and chilliness, last a few hours or days, and then suddenly disappear.

Mark the locality and the character of the pain. If he were a woman a question of ovarian neuralgia might arise. As it is, we can come to but one conclusion, and that is that he has been subject to nephritic colic.

For some years, at regular periods of three weeks or more, some solid mass has passed down the ureter, causing the sudden griping pain in the left groin, the chilliness and nausea. He has often observed a red color about his urine, though no gravel has been voided. After the colics he has noticed copious discharge of whitish urine. The attack of last March was of much longer duration than any previous one; the colic slowly ceased, and in its place a sore feeling was left. He shortly became aware of a tender swelling in the left side. This is the history of a case of nephritic colic ending in obstruction of the ureter. He says that for years he has had some uneasiness in the small of the back, and, on sudden jarring movement, an acute pain will strike him there. I have examined his urine and find it purulent, There are no bladder symptoms, no discharge in the intervals of micturition, and no tube-casts, hence I infer that the pus comes from the pelvis of the kidney and not from any other portion of the urinary tract. When he is stripped you perceive that the left ilio-costal interval is obliterated. I cannot grasp the soft structures in the left side because of the construction and deformity. There is a slight difference of contour between the two loins, viewed from behind, but no fluctuation, redness, or "pointing" at the site of the tenderness. He informs us that there was a very decided lessening of pain and swelling about six weeks ago. This swelling was probably due to retention of the urine in the pelvis of the left kidney, and to the further formation of an abscess. That it was not simply hydro-nephro-

sis the following facts show: During last summer he suffered greatly from chills and night-sweats, and lost twenty-five pounds in weight. Under the circumstances these symptoms, hectic and emaciation, unmistakably indicate suppuration.

But you ask, What has become of the pus? Why does not the abscess point? My answer is that it did point, and did discharge itself at the time when the swelling and pain subsided. A nephritic abscess may discharge in many different directions. It may find an outlet through the abdominal parietes into the bowels, into the hip joint, below Poupart's ligament, into the bladder, into the pleura, or into a bronchial tube. About six weeks ago he had a slight cough, without expectoration, which lasted for a few days, and one night he awoke in a violent fit of coughing and expectorated a great quantity of matter, which he says came so fast that it almost choked him. This cough has continued since. It is decidedly worse when he lies on the back or left side. The sputum is purulent and very unpleasant in odor; not exactly urinous, but worse. He says that the cough brought relief to his pain, and made walking easier. You inquire, What relation is there between the pylo-nephritis and his walking? Let me remind you of the anatomical relations of the kidney. Remember that it lies directly in front of the psoas muscle. When the perinephritic cellular tissue is inflamed or receives the contents of the ruptured pelvis of the kidney, every movement of the parts to which the muscle is attached causes pain. In consequence there is a reflex tonic contraction of that muscle, hence the limping, hence the bent thigh.

The obliteration of the ilio-costal interval is partly due to this, and partly also to the like action of the transversalis and the quadratus lumborum. I suppose that the abscess burrowed upward under the arch of the diaphragm and entered the thorax. As there was no pleuritic stitch then, and there is now no indication of pleuritic effusion, it is fair to infer that the pus kept to the mediastinal space. There is no dullness of the lower lobe of the left lung. In fact there are no abnormal pulmonary signs whatever, except moist râles in the larger bronchi. It is quite plain that the final irruption took place into the left bronchus. He is thin, sallow, cachectic, losing flesh day by day, and unless some other vent is found for the pus I fear that his lungs will not remain sound long. Hoping to strike the abscess and empty it by the loins, we introduced an aspirator needle for two

and a half inches through the quadratus muscle at the point he indicated as the tenderest. It is not necessary to wait for fluctuation. With the assurance we already have of suppuration, it is advisable to evacuate the abscess through the least injurious channel, namely, the posterior abdominal wall, even if several inches of muscle must be penetrated to effect our object. We failed to reach the abscess in our explorations, which have at least done him no harm. The operation is back of the peritoneal reflection, so that there is no risk of peritonitis. For the present we will be content with the administration of tonics and supportives to neutralize the effect of the chronic discharge. He takes cod-liver oil with hypophosphites and whiskey and nine grains of quinine daily. Warm fomentations are applied to the loins.

Perhaps the future may develop some new indication for surgical treatment by the pointing of the abscess externally.

Note. During the month of November, Dr. J. M. Holloway aspirated twice to a depth of three and four inches with negative results. In December the abscess broke into the bowels, yielding a great quantity of the pus. Since then the cough and the lump have disappeared, and the patient has gained flesh and strength week by week.—*J. W. Holland, in Louisville Med. News.*

THE EFFECTS OF DIVISION OF THE VAGI UPON THE HEART.

BY A. M. BLEILE, M.D., AND A. FEIL, COLUMBUS, O.

The following work was carried out in the physiological laboratory of Starling College. Our object was the demonstration of trophic nerves. The existence of nerve fibres regulating nutrition only, or trophic fibres, has been, though still with some dispute, generally accepted in physiology. This acceptance rests on circumstantial rather than direct evidence. In searching after these fibres by cutting a nerve trunk supplying an organ and then noting the changes produced thereby in such organ, the problem is complex, because on the one hand sensory fibres are destroyed and thus sensation in the part is abolished, which sensation protects from prolonged injury by giving prompt notice and calling forth means for checking injurious action; on the other hand, the vaso-motor mechanism is interfered with, and it is not easy to say what part the altered state of the blood-vessels may play in the pro-

duction of changes seen after nerve section. So, also, division of a nerve entails in many cases loss of function, which alone may cause changes without any nervous intervention. As a first object for our search the heart and its vagus nerves seemed to us the most suitable; for, first, the vagus has no vaso-motor fibres to the heart, and secondly, the heart goes on beating after division of one or both nerves, the beat being only changed in frequency, which change subsides to a greater or less degree in time. In fact after division of only one vagus the change is quite temporary, and in a very short time the normal status is nearly if not completely reached.

Mammals on which section of both vagi has been performed, as is well known, almost invariably die of pneumonia, about the causation of which there has been much discussion, but this is a point which does not further concern us here. Suffice it to say that it is probably caused by the penetration of saliva and food matter through the trachea and into the lungs from interference with swallowing. It can generally be prevented by tying in a tracheal canula, but the animals die, nevertheless.

Eichhorst found that pigeons did not suffer this lung change, yet died, and not of inanition, as he proved. He found a change which had hitherto been overlooked, namely, a fatty degeneration of the heart, and to this he ascribed the death of the animals. He also argued from this for the presence of trophic nerve fibres for the heart, as the change could not be otherwise explained. The factor of increased frequency of the heartbeats had nothing to do with the degeneration, for frequency brought about by the continued use of atropin entailed no change whatever in the structure of the heart.

As already stated, the vagus has no vaso-motor effects on the heart. He also experimented in a very few cases on rabbits and dogs, in all cases cutting both vagi, and arrived at similar conclusions.

Knoll, Zander and others gave as a cause of death and heart changes in animals in which both vagi had been cut and pneumonia prevented, inanition from inability to swallow food.

Our experiments differ from those cited in this important point. In nearly all cases one vagus was cut. In a few cases both vagi were cut. We give a few examples: Rabbit No. 1, divided both vagi; death in twenty-three hours. Rabbit No. 4, divided both vagi; death in thirty-six hours. In these cases both lungs were affected nearly throughout their whole extent. Rabbit No. 6, divided left vagus; rabbit to all

intents and purposes normal; killed on fifth day; at autopsy pregnancy was revealed. Rabbit No. 7, divided right vagus; rabbit normal; killed on fifteenth day. Rabbit No. 9, divided left vagus; rabbit pregnant at the time. On seventh day had a litter of seven rabbits. Everything normal so far as could be observed; killed by accident on thirty-second day. Portions of each heart were examined fresh. The organ was then put in $\frac{1}{4}$ per cent. chromic acid; after two weeks transferred to 70 per cent. alcohol and kept in this until required for use.

Staining agents used were osmic acid, carmine and the most satisfactory Bismark brown, some of which we obtained from Prof. Tuttle.

In all the hearts and in both auricles and ventricles nearly all the fibres were somewhat swollen, many of them showed an uneven contour, the cross-striæ had disappeared and in their stead we found an exquisite granular degeneration, probably fatty, the granules in most cases being as regularly disposed as though struck with a die. Here and there were fibres still showing striæ in parts, while in other parts the granulations are well marked. Normal fibres were extremely rare. Leaving out those cases in which both vagi had been cut, the animals a few hours after the operation were to all intents in a normal state; nor was anything abnormal revealed by post-mortem examination: the lungs were intact in every case. Yet all the hearts presented plain evidences of degenerative change, which we think cannot be explained otherwise than by the assumption of trophic cardiac fibres in the vagi, and that division of one vagus only is sufficient to destroy the normal balance and bring on degeneration: Our results further differ from Eichhorst in that, judging from his plates, the degeneration has not advanced as far as in his cases. Whether a longer time would bring about the further change, or whether the trophic impulses by the other vagus are sufficient to prevent it, we are unable to say.—*Proceedings American Society Microscopists.*

SHAVING THE QUININE-TREE.—The Ceylon *Observer* reports the practice pursued for some years of shaving bark off living cinchona trees has not been productive of any ill effects. The bark “renews” with even a larger percentage of alkaloid. Some trees have been thus treated on five successive occasions without their vitality having been in the least impaired.

Editorial.

THE USE OF THE GUM LANCET.

The almost indiscriminate lancing of the gums of teething children is a practice that is, happily we believe, falling into desuetude. It has been the habit of many dentists, and physicians as well, to ascribe to teething most of the ills to which children are subject during that critical period of the change from an exclusively fluid to a more concentrated diet. It is needless to remind any intelligent practitioner that the digestive apparatus of the infant is unfit to receive anything but the very simplest aliment. Yet injudicious mothers too often give to their young children food that would try the stomachs of strong men, and the consequences are what might naturally be expected.

Children are born without teeth, because their as yet imperfect and weak digestive functions are not fitted for the reception of food which would require a masticatory apparatus. As they gain in strength and in digestive power the teeth begin to make their appearance; the incisors or cutting teeth first, to indicate—not that the period for a change of nutriment has arrived—but that the time is approaching, and that nature is beginning to make provision for one of the great eras of a human life. It is not until the child is at least two and a half years old that the dental organs are sufficiently developed to properly prepare a more solid diet for digestion. Even at that time nothing but extremely succulent foods are permissible, and during the whole period of the dependence of the child upon the deciduous or temporary teeth it is unfitted for the regimen suitable to adult life. Nature gives an unfailing sign of the proper time for dietary advancement, not only in the natural appetites of the young of all mammals, but in the regular succession of their dental organs, and it is the extreme of folly to incite the appetites of children with temptingly prepared solid food, until both the teeth and the digestive apparatus are sufficiently developed to properly prepare and take care of it.

Mothers are usually, for divers reasons, in great haste to wean their children, and with the advent of their first tooth they begin to stuff them with vegetable, and even with animal food. The first attempts are usually made with viands that have been first masticated and mixed with the saliva of the mother—the saliva of an adult, that is as

unfitted for the stomach of a nursing infant as is the food which it is used to moisten. Watch an infant thus fed and see the wry faces and grimaces with which it rebels at, and usually repels the unfit stuff. Tea, coffee, and other stimulants are administered, and after a period of rejection a morbid appetite is finally awakened, and before the appearance of the first molar tooth the child eagerly swallows sustenance which its stomach and intestines cannot digest, and which if assimilated at all is sure to bring on pain and disease. About the time when the molar teeth are in process of eruption digestive ills of all sorts attack the child, and to the mere physiological process of cutting of the teeth is attributed the flatulence, diarrhea, convulsions and death of the little innocent, which falls a victim to the ignorant and mistaken kindness of its mother.

The child is ill. There is fever, with all sorts of digestive disturbance. Within its immature stomach lies a mass of food which it is powerless to digest, and which the whole system is rebelling against. The nervous irritation is so intense that possibly convulsions ensue. The physician or dentist looks in the mouth, and, incapable of seeing further, attributes all the trouble to a tooth which is perhaps not within a month of its proper period of eruption. Out comes the knife or lancet and the tender gums are lacerated, nine times out of ten without the slightest benefit. The tenth time the irritation is, by a kind of metastasis, transferred to the mouth, and temporary relief perhaps obtained. But the true cause of the distress is not diagnosed, and a repetition of the murderous feeding finally sweeps the little sufferer out of the reach of foolish mothers and meddling practitioners.

The assertion has been made that more than half the human family die of diseases incident to teething. A more false and irrational statement could not well be put forward, if by this is meant that these disorders are induced by the cutting of the teeth. Whoever heard of a child that suffered from the cutting of its teeth, which had a full supply of mother's milk during that period, and which was allowed no other food? Is not such an one almost universally a sturdy brat, that knows not what stomach-ache is like? On the other hand, is it not the truth that the infant which is deprived of its natural food, either through the criminal unwillingness of the mother to bear the proper burthens of maternity, or her impotent incompetence to properly nourish the offspring which she has brought into the world, is

frequently a weak, puny, scrawny child, which, ten to one, falls a victim to its improper food before the time arrives when its organs were fit for that which has killed it?

Inflamed and tumid gums are too often the result of an irritated and angry stomach. Digestion and assimilation being properly performed, there is nothing in the mere process of the eruption of the teeth which can cause any serious disturbance. Nature has provided for the absorption and disappearance of the tissues covering the growing tooth without any febrile symptoms, any diarrhoea or nervous convulsions, and the dentist or physician who mistakes digestive and functional disturbances for a mere local irritation would do better to go back to his college and his books and commence a new course of study. The mere fact that the period for the manifestation of these symptoms of a vicious diet is nearly coincident with that of cutting the molar teeth ought not to mislead any one.

There is usually little trouble during the eruption of the incisor teeth, unless the food has been exceptionally bad from the first, for the injudicious feeding does not commonly begin until near this period. Between the time of the appearance of the central incisors and that of the second molars there is plenty of opportunity for ruining the digestion of the little one. It is the cutting of these last that is dreaded by fond parents. So universally is their eruption coupled with digestive disorders that they are popularly known by the name of "stomach-teeth." Yet there are no greater obstacles in the way of their proper succession than in those of any of the others. The gums and investing tissues have not such an exquisitely nervous organization, are not so thoroughly supplied with nerve fibres as to produce any grave disturbances by the mere force of an advancing tooth. There is little or no sensitiveness in the raised gum. Pressure over the coming tooth is not annoying to the infant. On the contrary it often seems grateful. Whence then this idea of dangerous reflex nervous disturbances? The tissue is not highly vascular and there is consequently no serious interference with the circulation. What excuse is there then, except in unusual cases, for lancing the gums of the teething child?

We do not mean to assert that the interference of the practitioner is never demanded, but we do firmly believe that even now, when the gum lancet is resorted to so much less often than formerly, there is no call for its use once where it is employed ten times.

PASTEUR'S EXPERIMENTS CONCERNING CONTAGIOUS DISEASES.—Our readers are acquainted with the experiments of Professor Pasteur, wherein the microbe or bacterium of splenic fever and the organisms peculiar to typhoid fever were successfully "cultivated" in the laboratory of the great French investigator.

All his aim is to find what microbe, germ, bacterian or organism lies at the basis of contagious and epidemic diseases, in order that by *inoculation* he may save human and valuable animal life.

So assured is the French Government of the utility and practicability of his aim that 50,000 francs have been granted him to pursue his researches.

Thus far Pasteur has found that microbes of contagious diseases are all subject to the same law, and that exposure to *free oxygen* during their period of cultivation reduces their virulence. All concede the value of this discovery. Contending factions and rival nationalities—in the medical world at least—are for once in accord, when they recognize how great an advance in science and public hygiene has been made by the steady work of one man.

Hydrophobia is now the subject of discussion and investigation. Pasteur took from the mouth of a hospital patient—who died of hydrophobia—the thick, viscid, frothy saliva and inoculated a healthy rabbit with some of it. The animal died in three days, and on microscopic examination of its blood, was seen a new microbe.

Now when, at different times, he repeated his inoculation, it was found that all the rabbits did not have hydrophobia, but some died of septicæmia.

But logic has more than one method; *a priori* and *a fortiori* are different, yet by each can we prove and by each disprove.

Pasteur examined the saliva of individuals dying of other diseases and in it was the "new microbe." This was discouraging, for hydrophobia at least; but accepting this complete set-back philosophically, he cultivated some seventy or eighty generations, and the last descendants were as potent to kill when inoculated into rabbits as the first, *i.e.*, that in the saliva taken directly from the mouth of one dying of hydrophobia.

Now it was to be noted through every step of cultivation, that all access of air was prevented. But when cultivation took place in the presence of free oxygen, the fluids or organisms very rapidly lost all power of producing disease in rabbits when inoculated.

He was able, however, to prolong the life of the organisms for a period varying from two to seven weeks ; and succeeded in obtaining a cultivated form which was capable of producing the same relationship to the acutely fatal disease as the disturbances following a vaccination do to small-pox.

He found, moreover, that hydrophobia could not be "given" to those Guinea-pigs or rabbits who had suffered the mild attack induced by inoculation of the organism that had been cultivated in the presence of free oxygen.

Hence Pasteur has succeeded. He has proved that the hydrophobia poison lurks in the saliva ; that it can be cultivated ; and that when cultivated in a certain way, it can be used as "vaccine," the animal vaccinated therewith being thenceforward safe from hydrophobia.

How much farther these experiments can be carried, and how many diseases they will deal with seems only to be decided by the time and money at the command of the investigator. The latter requisite the Government seems willing to supply ; we wish that time were also at its disposal.

OPERATIONS for removal of the kidney are not infrequent, nor are they dangerous. Recently after extirpation of one kidney the patient died, and an autopsy revealed that a fellow-kidney had never existed.

In this number of the *INDEPENDENT PRACTITIONER* will be found an account of a somewhat similar operation : the patient suffered from hydronephrotic distension of one kidney, and, death occurring with uræmic symptoms, an autopsy revealed the fellow-kidney to be in an advanced stage of chronic Bright's, incapable of performing excretory functions necessary to life.

We read this article shortly after hearing of the case first referred to, and the thought forced itself upon us, how can unilateral disease or abnormality of the kidney be diagnosticated during life ?

There are several methods of preventing fluids from passing from one reservoir into another through flexible tubing ; plugging of either orifice and pressure upon the duct sufficient to occlude it are, of course, the two that at once suggest themselves.

Can we plug or tie, or press on a ureter so as to let the bladder fill with urine from the kidney on the other side ? If so, we can diagnose unilateral disease of the kidney, if it exist, and if urinary symptoms count for anything.

The absence of a kidney would, we opine, be a much more difficult matter to determine. Besides, if only one kidney existed and its ureter were plugged or ligated, uræmic symptoms might ensue.

The whole matter is one of the greatest importance, both on account of the (comparative) frequency with which nephrectomy is performed and the paucity of literature and experience in matters concerning so delicate and intricate a task as diagnosis of abnormalities in an organ, the manifestation of which can so readily be masked or altered.

ETIOLOGY OF DENTAL CARIES.—Last month we published a paper by Dr. Stockwell, upon this subject. This month we give another by Dr. Clark, both in support of the germ theory of decay. Next month we shall print one by Prof. Frank Abbott, in support of the vital theory, or the inflammatory hypothesis. Our May number will contain yet another paper, by Dr. W. D. Miller, of Berlin, presenting his theory of dental caries. The June number will contain an article giving the views of those who support the chemical theory, prepared for us by one who is an acknowledged authority.

It will be seen that all these papers are written by representative men, and we candidly believe that it will be the most valuable series of essays ever presented to the profession upon this subject. We hope they will be as widely read as their great importance demands.

Intending subscribers who desire to possess all of the series should have their subscription begin with the year.

A CONVENIENCE.—Dentists very frequently feel the need of a drop-tube, that may be used for different preparations and medicinal agents. A pair of ordinary foil plyers very nearly fulfil every requirement. They are easily cleaned, are readily inserted into the mouth of a vial, are always at hand when needed, and are certain in their action. If the points be brought in contact they will retain about a minim or drop of any fluid, which may then be conveniently carried into the cavity of a tooth, or into any sinus in the mouth, and when the points are allowed to separate the drop is yielded. A pair of plain plyers should be kept for this special use, and simply wiping them with a piece of chamois skin is quite sufficient to remove most of the topical applications which dentists use.

PLATINUM AND GOLD BLOCKS.—For packing into the interstices about gold plates before soldering, we have never found anything to equal the gold and platina blocks sometimes used in filling teeth. They are of just the proper rigidity to maintain their position during the heating process, and solder flows over them very readily. They may indeed be so manipulated as to make it run almost anywhere one would have it go. If wedged into a crevice closely, they will form a bridge over which the solder may be smoothly conducted; while, if they be loosely packed, it will sink into them as into a sponge, making a solid mass. We have found them very useful in soldering on the porcelain teeth of artificial crowns. In attaching together any two pieces of gold which are not exactly in coaptation, a piece of a platinum and gold block may be inserted to make a bridge for the solder. We have utilized them in mending a hole carelessly melted in a gold plate. In fact, they form a very useful, and to us, a necessary adjunct to the laboratory.

Current News and Opinion.

THE NEW YORK STATE MEDICAL SOCIETY held its twenty-seventh annual meeting, and there was no "great fight," as had been expected; on the contrary the utmost harmony prevailed, and the result of the Code business was a foregone conclusion to the knowing ones.

Dr. E. R. Squibb offered the following:

WHEREAS, The Special Committee on the Code of Ethics, in its report at the last annual meeting, recommended a change in one part of the Code which was more in the nature of a revolution than of a revision, and therefore may be more radical than was expected or desired by the constituency of this society; and

Whereas, That report was adopted at a session wherein only fifty-two members voted in the affirmative, and thus legislated for the entire profession of the State on a subject of vital importance in a direction which may not have been anticipated or desired by the profession at large; therefore,

Be it resolved, That all the action taken at the annual meeting of 1881, in regard to changing the Code of Ethics, be repealed, leaving the Code to stand as it was before such action was taken.

Resolved, That a new Special Committee of five be nominated by the Nominating Committee of the Society, and be appointed by the Society to review the Code of Ethics, and to report at the annual meeting of 1884 any changes in the Code that may be deemed advisable.

Resolved, That the report of this Committee be discussed at the meeting of 1884, and be then laid over for final action at the meeting of 1885.

It was voted that it be the special order for the evening session. After three hours' discussion in committee of the whole, the question was called and the ayes and nays being taken, the vote stood: Ayes, 99; nays, 105.

So the new Code is the Code.

Dr. Roosa's resolution, introduced directly the above result was announced, read, in spirit, that the only discipline that could be exercised over a physician by his brethren was in regard to acts unworthy of a gentlemen and a physician.

The action on Dr. Roosa's resolution was immediately postponed a twelfth month.

The meeting was well nigh a "specialists'" meeting, diseases of the eye and ear being by far the most prominent topic, concerning which papers were prepared and read.

This made it but moderately interesting, at least for the general practitioner, whereas, to our minds, it is he who should see that a one-sided meeting does not again occur, by himself preparing papers on subjects of wider interest—hygiene, preventive medicine, etc.

THE CARTWRIGHT LECTURES OF THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS for the present year were delivered at the Hall of the Young Men's Christian Association, corner of Fourth Avenue and Twenty-third Street, by Dr. W. T. Belfield, of Chicago, on the evenings of February 19th, 21st, 24th and 27th at eight o'clock. Subject: "The Relations of Micro-organisms to Disease."

THE Annual Commencement of the Medical and Dental Departments of the University of Maryland, will be held in conjunction, at the Academy of Music March 15, 1883. Physicians and Dental Specialists are invited to be present.

CONGRESS has struck from the Tariff Bill the item placing a duty of 10 per cent. on the sulphate and salts of quinia and cinchonidia.

NEW REMEDY IN DIPHThERIA.—A German apothecary, R. Münch (Kronen-Apotheke in Leipsic-Sohlis), who enjoys a great reputation for veracity and reliability amongst those who know him, recommends in No. 27 of the Pharm. Centr. Anzeiger, "as a new remedy in diphtheria, and the effect" of which he had noticed on his own seven-year-old daughter—oleum terebinthinæ rectificatum. Children take one teaspoonful morning and night; adults, a tablespoonful. In children tepid milk is given after it; it might also be mixed with the same. The effect of this remedy, which has of late been highly praised by different authors, is said to be really a miraculous one. Within already half an hour after the administration of the drug, a bright redness begins to spread from the margin of the diphtheritic exudation, and this redness becomes generally diffused over and taking the place of the false membrane, and the disease is said to disappear within twenty-four hours without leaving the slightest trace. While this wonderful effect is said to be invariably met with when the remedy is made use of at the very commencement of the disease, those who recommend it so highly contend that it is also successful, only less rapidly, in cases that have already progressed for several days.

THE Mississippi Valley Association at Cincinnati March 7, 8 and 9th. Subjects for discussion :

1. Nervous and muscular affections dependent on dental irritation.
2. Etiology and pathology of dental caries ; treatment by filling.
3. Periodontitis and alveolar abscess ; pathology and treatment.
4. Prosthetic dentistry ; restoration of features and expression—how best accomplished.
5. Fitting artificial crowns to roots of natural teeth—new and old methods.
6. Reports of case in practice.

INTESTINAL OBSTRUCTION RELIEVED BY MASSAGE.—Dr. Bitterlin reports a case of intestinal occlusion accompanied with much pain, vomiting of fecaloid matter, hiccough continuing in spite of treatment for eight days, finally relieved by kneading and malaxation of the belly. The manipulation was very painful. Some instants after, violent colic came on and gurglings, the bowels shortly afterwards moved and the patient recovered. Dr. Bitterlin mentions a second case in which he was called in consultation, where the same treatment was followed by the same happy results.—*L'Union Medical*.

ASPIRATION OF A SEROUS FLUID IN THE PERICARDIUM. RECOVERY.—A boy twelve years of age suffered first from acute rheumatism. After two weeks, pericarditis set in, and suddenly the patient became asphyctic, the veins of the thorax being overfilled, and the action of the heart very irregular. An aspirator needle was inserted three cm. from the sternum, into the second intercostal space, and then, no effect resulting, into the third intercostal space. One hundred grms. of a serous fluid were aspirated, and the patient recovered quickly.—*Correspondenz Blatt. f. Schweizer Aertze.*

DR. W. ST. GEORGE ELLIOTT, the well-known American dentist of London, is delivering a course of lectures upon operative dentistry, at the National Dental College, Great Portland Street, London, England.

THE Alabama Dental Association will hold its Fourth Annual Meeting in Montgomery on the second Tuesday in April. The State Board of Dental Examiners will meet at the same time and place.

DR. B. W. RICHARDSON of London declared, in a recent address, that he had never seen a healthy child, nor one that had not in it either some ancestral or latent constitutional disease.

IT IS STATED on good authority that the *British Medical Journal* has been advertising a work entitled "Diseases of the Prostate in Both Sexes," by David Jones, M.D.

CHAUVEAU announces that he has found the microbe of puerperal fever. It were desirable that vaccination with it in an attenuated form may prove practicable.

THE Forty-second Annual Commencement of the University of the City of New York, Medical Department, will be held at the Academy of Music March 13, 1883.

BODY SNATCHING is quite prevalent, and the daily press has a rich mine of horrors wherewith to work on the easily excitable morbid fancies of their readers.

THE Vermont Dental Society will hold its Seventh Annual Meeting in the Bates House, Rutland, Vt., on March 21, 22 and 23, commencing at 7:30 p.m.

MULOT, in *Le Progres Medical*, reports a case of primary cancer of the gall bladder which is an extremely rare pathological condition.

"SYMPOSIA" seem to be the rule with the *N. Y. Medical Journal*. After carbolic acid in January, came kidney and stone in February.

THE Brooklyn Dental Society will hold its next meeting on the 12th inst. at the residence of Dr. Van Wart, Noble Street, Greenpoint.

THE New York College of Dentistry will hold its Seventeenth Annual Commencement on the 6th of March, at Chickering Hall.

Bibliographical.

Spare Hours. JOHN BROWN, M.D. Boston: Houghton, Mifflin & Co. 1883. 3 vols., pp. 375, 450 and 425, respectively.

Under the title "*Spare Hours*,"—a phrase that has an idealistic sound to most practitioners—Dr. Brown has written a number of stories, reminiscences, memoirs and critiques that for variety, interest, quaint phraseology and deep, keen and loving humanity both towards man and the brute creation, can not be matched in our literature.

The medical world should be proud of one who, while steadily and thoroughly practising his chosen and domineering profession, can still fill no mean place in a still wider field—general literature.

We doctors take an interest in whatever is done—if done well—by one of us outside the pale of the regulation practice. Witness, for instance, how Dr. Haden, in his lectures on "*Etching*," is chronicled in the American press. And did not Sir Thomas Watson, Sir Henry Thompson, Dr. Richardson and our own Hayes and Holmes labor in other fields than that of medicine?

Recently books have been published telling doctors how to dress, talk, act, how to have their offices furnished, and advising them to form, if any new acquaintances, those of their own "*business*;" that is the term, we think, adopted in such books.

Breadth in any calling is obtained only by those minds who associate with books and men who do not eternally remind them of *the shop*, who have other interests, and who push them with as true and devoted energy as most physicians do theirs.

In the quaintly serious "*sermons*" of our author anent "*The Doctor*," we find him telling us to "trust, obey, speak the truth to and reward him. You must reward him by giving him your money, your

gratitude, by doing his bidding, and, lastly, by speaking well of him, giving him a good name, recommending him to others."

The "sermon" to the doctor upon his duties to you, *i.e.*, the laity, is too good to be quoted piecemeal. In one of his lay sermons to working people, he says: "It is the doctor's duty to keep *his time and temper with you*. Any man or woman who knows how longed for a doctor's visit is, and counts on it to a minute, knows how wrong, how painful, how angering it is for the doctor not to keep his time. Many things may occur, for his urgent cases are often sudden, to put him out of his reckoning; but it is wonderful what method, and real consideration, and a strong will can do in this way. I never found Dr. Abercrombie a minute after or before his time (both are bad, though one is the worsen,) and yet if I wanted him in a hurry, and stopped his carriage in the street, he would always go with me at once; he had the knack and the principle of being true to his times, for it is often a matter of truth." The books are full of honesty of mind, not dwelling in those methods by which you can gain customers like an importunate and impecunious tradesman.

For a rest after study, doubly pleasing from style and brevity + Spare Hours of the versatile Scotsman are delightful; and a physician library would be incomplete indeed, had he never so few spare hours, were "Dr. Broon" not to find a place along his shelves.

Functions and Disorders of the Reproductive Organs. WILLIAM ACTON, M.R.C.S., Sixth Edition. Philadelphia: P. Blakiston, Son & Co. 1883.

On closing this book we are struck with the thought, that if those who needed its sound and convincing advice, could or would read it, much good would result, for it is an outlay in the right and proper form of all that is perverted in quack productions, hinted at in the columns of so many of our dailies, and thrust in the hands of passing youths in the form of advertisements by dirty tramps, hired by the quacks infesting our cities.

Dr. Acton reasons, pleads with, and gives the onanist, debauchee, and all who give sexual passion unbridled sway, the very best advice. He quotes Juvenal, Shakspeare, Horace, most of the dictionaries, and a vast number of physiologies,—but where is his audience?

Six editions must mean something, certainly; but unless men outside of the profession buy and read it, we must either suppose the

doctors all want the book, or else that they buy it and give it to the "erring ones." The latter we do not think likely. And as every well-read, common-sense physician knows the anatomy and physiology of the genital organs, and the derangement—both mental and physical—induced by any disease or disturbance in function of "this delicately arranged apparatus," he cannot learn very much from Doctor Acton.

Several "spicy" cases are given, and, for the salacious, might result in morbid thought, or what is called here, "mental masturbation," if other than the physician opened its pages.

At any rate, you would not leave the book upon the library table, since it contains a history of nearly every vile practice that man or woman resorts to.

Still, it is full of honesty and common sense from one end to the other; it abounds in quotations that show how sincere the author feels in his work, and how deeply he has read in all the literature that bears, in any way, upon his subject.

One thing in his book is wrong, to name none other, and that is where he ascribes to ladies and gentlemen who dance the so-called "round dances" together erotic feelings, stating that chronic uterine disease results therefrom, in the "fashionable women of to-day."

Rather to fashion, late hours and close rooms would we ascribe the uterine disorders, than to the few minutes of "a dance." None but a few animals, at best, could be so excited, and those would not *dance* for the purpose, be sure. In this and a few other matters our author carries it too far. His book is on an important subject; but a subject that does not take in quite *all* the domain of medicine and society ills, as he would have us believe.

A Practical Treatise on Operative Dentistry. J. TAFT, M.D., D.D.S. Fourth edition, revised. Philadelphia: P. Blakiston, Son & Co. 1882. Price, cloth, \$4.25; sheep, \$5.

This work is already too well known in the profession to need any extended review at our hands. In all the literature of Dentistry there is nothing which has met with greater favor, or been more extensively adopted as a text book. The very fact that a fourth edition was demanded is quite sufficient proof of the high estimation in which it is held by dentists. Its author is so well known, both as a

teacher and writer, that his statements are usually accepted without controversy by most practitioners. Yet since the first edition was published our knowledge of dental tissues has been so continually extended, and dental practice has been so modified, that a standard work like this needs constant revision. There is more than one statement in the book which, once in harmony with the prevalent pathological views of the day, is now, in the estimation of many intelligent men, antiquated and obsolete. But, while discussion is yet active over these disputed questions, and until they are authoritatively settled, the author has, in our opinion, done well to stand by his first utterances. It is not at all improbable that, as the result of investigation now being actively pursued, dental practice will in the near future need yet further material modification, and the fifth edition may be profitably re-written. It is not wise in a standard text book like this, to incorporate as a part of an established practice methods, materials and remedies, the merits of which are now in dispute. Until the time shall come when the present transition state of dental practice shall have passed, and the whole profession shall be better agreed upon certain controverted questions, the day for the complete revision of Taft's Operative Dentistry has not arrived. When that time shall come the limits of a volume like this will not contain all that should be incorporated in it, and a practically new work will be the result. Until that period, the book under notice will probably remain what it has been in the past, the best work upon operative dentistry extant.

The publishers have done their whole duty by the author ; the type is exceptionally clear, the cuts are well executed, and the whole volume presents a handsome appearance.

Chance's Dental Itemizer ; embracing an entirely new system for quickly and accurately recording all dental operations. * Devised and arranged by GEO. H. CHANCE, D.D.S., Portland, Oregon.

This is the most concise and succinct of the many methods for the registering of dental operations. It comprises a system of arbitrary characters, however, which must be first committed to memory and made entirely familiar to the eye, after which the proper record is easily kept, and forms a very complete history of the work done for each patient.

Scrofula and its Gland Diseases. An introduction to the general

pathology of Scrofula. FREDERICK TREVES, F.R.C.S., Eng. Philadelphia: H. C. Lea's Son & Co. 1883. Pp. 77, Price, ten cents.

This cheap little pamphlet has in condensed form, most of the modern views succinctly formulated. There is no index and but a sparse survey in the table of contents. We look in vain for Koch's name or anything concerning his experiments.

PAMPHLETS RECEIVED.—*Annual Reports of the Sanitary Protective Association of Newport, R. I. Transactions of the N. H. Medical Society, at its Ninety-second Annual Session, held at Concord, N. H., June, 1882. Fifteenth Annual Report of the New York Orthopædic Dispensary and Hospital* (for children with spine and hip diseases and other deformities), for the year ending September 30, 1882.

The Proceedings of the Medical Society of the County of Kings Vol. 7. No. 12. The major part of this number is devoted to an article by Dr. N. B. Size, entitled "Resorcine—Its History and Antiseptic Value."

We cull the following from p. 273 of the "Proceedings :"

Mr. A. sold a colt, as a gelding, to Mr. B., which colt had had but one testicle removed, the other remaining within the cavity of the abdomen. The veterinary surgeon who had castrated the animal was sworn, and, on his cross-examination, stated the following interesting features in the anatomy of the horse :

Attorney—What are varicose veins and where are they found ?

Witness—I don't know, but I can tell where the bellicose veins are.

Atty.—Where are they ?

Wit.—Close to the belly.

Atty.—Where is the scrotum ?

Wit.—I am not quite certain, but I think that it is the film that covers the teeth during infancy.

Atty.—Have you ever made any examinations in the abdominal region ?

Wit.—No; all of my examinations have been made in Broome County.

THE annual meeting of the New York Medical Mission was held at the Broadway Tabernacle on Tuesday evening, February 20, at 8 o'clock. Prof. A. C. Post, M.D., LL.D., presided. Bishop Harris, Dr. Brachet, of China, and Rev. Drs. Taylor, Vincent and Sabine delivered addresses.

Obituary.

MARSHALL H. WEBB, D.D.S.—At a meeting of the Odontological Society of Pennsylvania, held January 6th, 1883, the following was adopted as a tribute to the memory of a late fellow-member: We desire to express, as far as words can, our deep sorrow for the death of Marshall H. Webb, D. D. S., and our recognition that in him we have lost, not only a most worthy member, but a sympathizing friend. With deep regret we realize that we shall never again listen to his voice, nor feel the force of his personal magnetism.

Death never enters into any family group of friends nor an association of any kind, but it trails a shadow to darken some life, to sadden some heart and render obscure the pathway of the future.

In the death of our colleague and friend we recognise the full force of this, for he not only leaves a sorrowing family, but his departure involves a large circle which has felt and will continue to feel its influence far into the future.

Dr. Webb was no ordinary man. He was essentially a leader; not in the sense of arrogant assumption, but as one who took his place through earnest toil, unselfish devotion, and conscientious ambition. He labored that others might grow. He mined that the professional as might burn all the more brilliantly, and though his day was short, every hour was full, and the record thereof may be filed away in the hearts of his friends with the indorsement, "Well done good and faithful servant."

The hour of death is not the hour for critical judgment. Dr. Webb's work belongs to his profession. The ideal that he labored for was his ever constant inspiration. To accomplish it no sacrifice was too great, no labor too exhausting. No life can be valueless that aims at excellence, but how much more worthy of emulation if the harvest be gathered with the golden grain ripened to perfection. In his special work our friend reached an acme of skill beyond which he had no superiors. Perhaps he may not have always worked wisely; it may be that his unswerving devotion to his ideal brought him to suffering and death; but, if so, he leaves a monument in his example that will be an honor to his name and a glory to his profession.

We wait, watch and linger by our dead. Their memory hallows

our lives, their deeds are graven on sorrowing hearts. But as we linger the funeral knell reminds us again that change is the law of the Universe, and that in the translation of another we inherit the work of a life, and this should be an ever present incentive, abiding with us forever.

Resolved—That a copy of the foregoing be transmitted to the family of the deceased, with the assurance of our deep sympathy with them in their affliction, and also forwarded to the dental journals for publication.

DR. LAFAYETTE RANNEY, a well-known physician in this city, died of pneumonia at his residence, No. 14 West Thirty-second Street, Thursday, February 15th. Dr. Ranney was a member of an old and distinguished Vermont family, and his father was for many years Lieutenant Governor of that State. He was born in 1819, and was educated at Dartmouth College, graduating in 1845. Shortly after he came to this city to practice. Dr. Ranney's career in this city was one of considerable distinction. He was for many years a Commissioner of Education, and was one of the leading members of the Broadway Tabernacle Church. Of late he had led a life of great retirement. Dr. Ranney was twice married. He leaves four sons, two of whom are physicians, the eldest, Dr. Ambrose L. Ranney, being adjunct professor of anatomy in the University Medical College.

THE DEATH OF MRS. BEARD.—Mrs. Elizabeth A. Beard, wife of the late Dr. George M. Beard, died of pneumonia at the Grand Hotel, New York, January 31. The week previous her husband died of the same disease.

A PRIOR CLAIMANT TO GALVANI'S DISCOVERY.—Professor S. Thompson points out the little-known fact that Swammerdam anticipated the famous initial experiment of Galvani by more than a hundred years. Being on a visit in Tuscany, in 1678, the illustrious Dutch naturalist showed to the Grand Duke that when a portion of muscle of a frog's leg, hanging by a thread of nerve bound with silver wire, was held over a copper support so that both nerve and wire touched the copper, the muscle immediately contracted.

Extracts.

POLIO-(TREPHO)-MYELITIS ANTERIOR.—The rarity of this disease, and its peculiar symptoms, have always interested physicians. The following case will show symptoms which are not always observed. A physician, forty-one years of age, and a very busy practitioner, felt suddenly a weakness in the lower extremities. During the day he was able to walk, but on the same evening he could not climb the stairs without being assisted. At first, the muscles of the upper part of the left limb were affected, and then the muscles of the right limb. Paresis of the lower extremities followed during the next two days, and on the fifth day paralysis of the same. At the same time, a weakness of the muscles in the dorsal region was noticed; then paresis and paralysis of the right and left arms, and at last the muscles of the neck and face were attacked. On the eleventh day, the *status præsens* was as follows: The patient is of a gracile structure, without panniculus adiposus; the lower extremities are paralyzed; the muscles lax; passive motion not impaired; perfect paralysis of the muscles of the middle part of the body; not the slightest motion can be executed by this part. Left arm motionless; on the right arm only the fingers can be moved. Paresis of the muscles of the face, but the mouth can be opened; the patient cannot spit out. The eyes can be closed and opened; knitting the brows is impossible, also deep inspiration and expectoration. With the exception of slight movements of the head and the right hand, the body is motionless. Sphincters free. Urination but seldom; urine without albumen. Defecation must be brought on by high injections. The sensibility of the lower extremities is abolished; the sense of touch is lost; the patient cannot discern if a piece of wood or cloth is laid between the toes or fingers. Temperature and the sensation of pain very much diminished. The reflex sensation of the skin and the tendons is abolished. Pupils small, but they react normally. The patient is morally depressed, believing that he suffers from Gaudry's paralysis, and that he must die. After three weeks, decubitus set in, but after four to six weeks' treatment with the Faradaic current, the patient recovered entirely. There were some symptoms of syphilitic affection, and the patient had had syphilis twenty years ago, but the treatment proved the true nature of the disease.—*St. Petersburg Med. Wochenschrift.*

THOMAS ON EXTRA-UTERINE PREGNANCY.—In a paper entitled “Notes of Twenty-one Cases of Extra-Uterine Pregnancy,” read at the last meeting of the American Gynecological Society, the author, Dr. T. Gaillard Thomas gave the following rules with reference to treatment: 1st. If an ectopic tumor were discovered and its nature pretty well settled before the end of the fourth month of gestation, he would destroy the vitality of the child by electricity in preference to all other methods which had been proposed. It had these great advantages: If an error of diagnosis had been made, this remedy would do no harm; if the diagnosis was correct experience proved it to be sufficient in its effects. It was almost painless, and caused none of the nervous disturbances created by a cutting operation, and it required no surgical skill in its use. 2d. Should the fourth month of gestation be passed and surgical interference be called for, he thought that laparotomy or, if the tumor were low down in the pelvis, elyototomy should be preferred to the use of electricity, which left a large foetal body to undergo absorption inside the body of the mother. 3d. Should the pregnancy be abdominal, the practitioner might watchfully await the full term of gestation, and deliver then, by laparotomy or by elyototomy, combined with the forceps of version. 4th. Should full term be passed, and the foetus be dead, the practitioner should wait and watch, if possible, until nature demonstrated the outlet by which she desired the extrusion to be effected; then she should be aided. If, on the other hand, bad symptoms under these circumstances at any time showed themselves, laparotomy, under strict antiseptic precautions, should be promptly resorted to. 5th. Should rupture of the foetal nidus have occurred before a diagnosis had been fully made, the practitioner should wait and see whether nature was powerful enough to overcome the shock and control hæmorrhage, then, further, if the patient was going to escape the dangers of peritonitis and septicæmia. If these favorable results did not occur, if hæmorrhage was about to destroy the patient immediately, or if septicæmia attacked her, laparotomy, followed by antiseptic cleansing should be promptly adopted.

ADDISON'S DISEASE.—Semmola, by new studies, confirms the opinion that Addison's disease must be considered an affection of the central nervous ganglia, and that the anatomical alterations of the suprarenal capsules are not the point of departure of the disease; but where they

exist they represent trophic disorders produced by the nervous filaments which preside over the nutrition of these organs, and this he demonstrated at the International Congress in London with drawings which showed the microscopical alterations of some points of the central ganglia and of the dorsal section of the spinal cord, the alterations being a myxomatous transformation of the stroma of the cœliac axis, and leucocytic infiltration of the spinal medulla around the central canal.

He concludes that Addison's disease is a profound disorder of the renal nutrition, determined by the successive alteration of the functions of the sympathetic and of the different nervous centres of organic life (cœliac axis, etc.). And with the help of the physiopathology of the central nervous ganglia, he explains all the successive symptoms of the malady, such as the disorders of digestion, the cachexia, the lowering of the temperature, etc. The discoloration of the skin, when no lesion of the suprarenal capsules can be found, may be attributed to the influence of the sympathetic and central nervous ganglia, which are certainly concerned in the formation of pigment. Not a few cases of melanodermy have occurred a few days after violent moral emotion.

Semmola confirms his assertion by quoting a case of Addison's disease, accompanied by syncope, in which the electrical current, passed from the neck to the epigastrium, did good. In other cases, with the same treatment, there were restoration of strength, increase of the temperature to the normal, improvement in digestion, and, above all, gradual disappearance of pigmentation.—*Lond. Med. Record.*

Popular Science Department.

THE DISCOVERY OF GRAPE SUGAR.—At the present time, glucose, or artificial grape sugar, is being made in such quantities, and so much has been said and written for and against it, some regarding it as identical with the natural sugar of fruits and honey, others as differing from it physiologically, if not chemically, that our readers will be interested in the early history of the substance. The first mention of it was made by T. Lowitz in an article published in Crell's *Chemische Annalen* for the first half of the year 1792. This journal, then one of the leading scientific periodicals, is now so scarce that no public library in New York City is in possession of a set of it.

Lowitz discovered a peculiar kind of sugar in honey, and gives in that journal a quaint but interesting description of the manner in which he discovered and prepared it.

We may conclude, says Lowitz, that honey owes its sweetness to the abundance of sugar that it contains, but that no one knew how to separate this from the other constituents. This separation was the chief object of his experiments. First he succeeded in removing the peculiar taste, odor and color by filtering the diluted honey over charcoal, but on attempting to concentrate the solution by evaporation, it turned brown and showed no tendency to crystallize.

After several months, he continues, there appeared in my honey, which had been treated with charcoal and again concentrated, some very small, white, shining bodies of crystalline nature, which gradually increased in quantity, and finally filled out, for the greater part, the whole mass of honey. In order to be able to investigate the nature of this granular substance, it was necessary to carefully remove from it the brown, thick, sticky substances. This succeeded best by washing it with cold, highly rectified spirits of wine (alcohol). I was delighted to see that, by mixing strongly together, the alcohol dissolved the adhesive matter without perceptibly attacking the white granular particles, which were finally entirely cleansed from it by frequent washing with fresh alcohol. The sugary substance that remained on the filter, after gently drying, could be rubbed to a fine and perfectly white powder, which did not attract moisture from the air and possessed an agreeable sweet taste.

The author goes on to state that all his efforts to obtain regular crystals were fruitless, that the crystalline masses always resembled cauliflower (or warts), and consisted of very fine needles. He also found that the solution was turned brown by lime water, and after precipitating the lime an acid remained. This sugar was also decomposed by other caustic alkalies, he says. After discussing the difference in the action of this sugar and other sugar toward alkalies, Lowitz adds that the other substance extracted from the honey sugar by alcohol differs from it in no other respect except that it cannot be obtained in a dry form by any means; that to this latter substance honey owes its property of turning brown by heat, for when the honey sugar has been freed from it the solution can be boiled over the fire without browning. Moreover, this sweet, sticky substance resembles honey sugar in all other properties, as well in taste as in its action toward caustic alkalies and quicklime.

He concludes with the assertion that there is no hope of our ever being able to make sugar from honey, as something more is necessary than to merely remove the foreign substances.

Reading these remarks with the light that ninety years of research have thrown upon them, they stand forth as remarkable instances of correct observation. The crystals which he obtained were dextrose, or ordinary glucose, while the uncrystallized sugar is now known as levulose, a mixture of the two constituting fruit sugar as it exists in honey.

Ten years or more elapsed before Kirchoff discovered the now important fact that this form of sugar could be made from starch by the action of dilute acids; and a half a century rolled away before the manufacture of sugar from starch became one of the large—very large—chemical industries.—*Scientific American*.

HOSPITAL SUNDAY DISTRIBUTION.

The Hospital Saturday and Sunday Fund Committee yesterday agreed upon the ratio of distribution of the sums collected through the various channels employed by the association. The report of the committee shows that the total amount of designated and undesignated funds collected was \$33,762.72; and this amount, minus \$3,935.56, was distributed among the following institutions:

St. Luke's Hospital.....	\$7,674 04
Hospital for Ruptured and Crippled.....	405 00
Mount Sinai Hospital.....	4,200 00
German Hospital.....	3,255 00
Presbyterian Hospital.....	4,191 03
St. Mary's Hospital.....	2,052 01
House of Rest for Consumptives.....	1,420 00
House of Holy Comforter.....	1,228 75
Home for Incurables.....	956 71
New York Eye and Ear Infirmary.....	217 60
New York Infirmary for Women and Children.....	561 00
New York Ophthalmic Hospital.....	570 00
Hahnemann Hospital.....	946 02
French Hospital.....	555 00
Orthopedic Hospital.....	570 00
Ophthalmic and Aural Institute.....	550 00
Manhattan Eye and Ear Hospital.....	475 00

Total.....\$29,827 16

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Independent Practitioner.

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Original Communications.

We are not responsible for the opinions expressed by contributors.

ARTICLE I.

MEDICAL CLINIC.

[Concluded from March Number.]

BY ALFRED L. LOOMIS, A.M., M.D.,

Professor of Pathology and the Practice of Medicine in the Medical Department of the University of the City of New York, held in Bellevue Hospital.

CASE II.

PLEURISY, ACUTE BRONCHITIS AND BRONCHIAL HEMORRHAGE.—A QUESTION
OF PHTHISICAL DEVELOPMENTS SUBSEQUENT.

Gentlemen :—This young woman, æt 18 years, says that she was perfectly well up to two years ago, when she was taken with a severe pain in her left side. The pain was so severe that it prevented a full inspiration. Her sickness kept her in bed for about one week, but she remained ill for six months after.

Her physician told her that she had pleurisy. She does not remember whether or not she had a chill at the commencement of the disease. Her chief symptoms were *shortness of breath* and *pain in the side*. From that sickness she says she entirely recovered, so that she felt perfectly well, having neither cough nor pain, and being able to lie upon one side as well as the other.

She remained well until about four weeks ago when, as she says, she "began to feel all sore on the inside on both sides of the chest, but more on the left side than on the right side."

She called a physician, who applied a blister to the left side, and she was so far relieved that she was able to be up again, but not able to attend to her occupation, which is that of a silk weaver.

While she had the "soreness in the chest," she had some cough, which has continued, and is attended by the expectoration of a considerable quantity of muco-purulent material.

About three weeks ago she began to "raise blood," at first five or six mouthfuls of thick, but not very dark blood, and, she says, it looked very much "like a clot."

On the following day she again expectorated about the same quantity of blood. The day following, she says she vomited about two quarts of blood, the vomiting being preceded by a paroxysm of coughing. Hæmatemesis continued only for about one week, and since that time she has continued to cough, and to expectorate quite freely "yellowish phlegm." During the past four weeks she has lost flesh. At the present time she has a chilly sensation in the morning, some fever towards the close of the day, and occasional sweating in the night. Her pulse is 76; temperature is 99°. There is no history of phthisis in her family.

The question arises in these cases: is there any connection between the pleurisy which she suffered two years ago and her present condition? Is a subacute pleurisy ever the remote starting point of phthisical development? I am more careful with respect to the after treatment of one who has had an attack of subacute pleurisy than I am with reference to the after treatment of a case of acute pneumonia. If a man recovers from pneumonia, his recovery is complete, and thereafter he is as well as ever he was, unless, at the same time, he had an extensive pleurisy.

One who has had subacute pleurisy may get entirely well, but if he has any phthisical tendency, thickening of the pleura is quite sure to be followed sooner or later by pulmonary disease.

Now, making a physical examination, we notice on inspection, that there is a slight depression under the clavicle on both sides of the chest. On percussion we find normal resonance upon the right side under the clavicle, but upon the left side the pitch is higher. This difference in the percussion note is shown better by light than by heavy percussion, and this is very good evidence that whatever interferes with normal resonance is quite superficial. Strong percussion brings out the deep-seated resonance. There is then slight dulness under

the left clavicle recognized by light percussion. On percussion the chest *posteriorly* we find dulness upon the left sides, as compared with the right, and in the scapular region there is almost complete flatness.

Expansion of the chest is very good upon both sides.

Vocal fremitus does not tell us anything in this case, since the patient's voice is normally high-pitched, and there exists some laryngeal trouble which causes almost complete aphonia.

The result of the physical examination thus far is, general dulness over the entire left side of the chest, most marked beneath the scapulæ, but also well marked below the clavicle. The dulness is more marked at the upper than at the lower portion of the left side of the chest.

On auscultation, exaggerated respiration is heard all over the right side of the chest, and its character indicates that it is *not* of recent origin. In other words, I am led to believe from the character of the respiration that the right lung has for a long time been performing extra work. The vesicular murmur is feeble over the entire left side of the chest.

Pleuritic creakings and crepitations are heard in front and behind, but are most marked just under the scapula. The respiratory murmur can be heard at the bottom of the chest, although it is feeble there.

Inspiration is interrupted and "wavy" in character.

Mucous râles of small size are heard in abundance in the supra-scapular region, and a few bronchial râles can be heard in front.

The only place at which the respiration has anything like a bronchial character, is just at the border of the supra-scapular fossa, and underneath the scapula. There is, then, only slight evidence of lung consolidation from these physical signs. We reach the diagnosis that there are thickenings of the pleura and adhesions over the entire left side of the chest. The physical signs which indicate this are most marked in the lower portion of the chest cavity.

In addition to this, we hear rude respiration over the entire left side of the chest, but although rude, it is diminished in intensity.

Underneath the scapula there is some bronchial *expiration*, but *not* bronchial breathing.

Mucous râles, almost subcrepitant, are heard in the supra-scapular fossa in abundance, and less abundant under the clavicle upon the left side.

There has either been a thickening of the mucous membrane of the bronchial tubes, or they contain a tenacious secretion which gives rise to imperfect sonorous râles. It may be that the change which gives rise to this sound is in the *larynx*, for when laryngeal changes have gone to the extent of producing nearly complete aphonia, it is sometimes very difficult to determine the presence of bronchial respiration. In other words, you will think that you hear bronchial respiration in lungs wherein there is no consolidation. I have, in a number of instances, noticed that it was difficult to determine where bronchial and amphoric respiration was present when changes in the larynx co-existed. In cases of advanced phthisis, examination of the chest is rendered more or less unsatisfactory by the existence of these laryngeal changes.

I believe that this woman had an acute pleurisy, which was followed by a sub-acute pleurisy, with a large amount of serous effusion, containing considerable fibrinous material, and that it was six months before she recovered sufficiently to be able to go about her work ; that during that time firm adhesions formed between the two surfaces of the pleura upon the left side. Because of the pleuritic adhesions, nothing would more disturb the circulation within the chest than an acute attack of bronchitis. As a result of such disturbance hyperæmia occurred, and a more or less profuse bronchial hemorrhage followed.

Ordinarily such an attack of bronchitis would be attended simply by a muco-purulent expectoration ; but, with pleuritic adhesions, what would otherwise have been a simple bronchitis is changed into a bronchitis attended by hemorrhage.

The fact that there was a bronchial hemorrhage, is evidence that there was a disturbance in the pulmonary circulation by the adhesions from the pleurisy.

As a result of the acute attack of bronchitis and derangement of pulmonary circulation, she has reached a condition in which there is evidence of *slight* consolidation of the lung beneath the scapul. Whether this slight consolidation developed in connection with the old pleurisy, or whether it is of recent origin, cannot be decided. In order to settle that question it will be necessary to watch the case for some time. If it is found that the evidence of pulmonary consolidation disappears, it must be regarded as of *recent* origin. I am inclined to believe, however, that it is an old condition, and that she has

no real catarrhal pneumonia, but that there are fibrous changes in the lung, the result of her attack of pleurisy. In other words, although she is not yet in the condition in which one can say she has fibrous phthisis (for fibrous phthisis cannot be positively diagnosed until there is evidence of contraction of the chest walls together with evidence of pulmonary consolidation), yet she is in a condition in which you are quite certain to see fibrous or catarrhal phthisis sooner or later develop.

If she becomes debilitated by bronchial hemorrhages, the bronchitis, which appeared as an acute disease, will almost certainly lead to broncho-pneumonia and catarrhal phthisis. If, however, she recovers from the bronchitis and does not have a renewal of the pleurisy (and this is quite possible), she will nevertheless be in as great danger as she has been for two years past. For, whenever she has an acute pulmonary affection—no matter what it may be—she will be very liable to develop phthisis, and most probably the catarrhal variety.

If instead of being free from hereditary taint, she possesses an inherited tendency to phthisis, these pleuritic changes which were fibrous in their nature and non-tubercular at the commencement, would be followed in all probability by a phthisis that would be both tubercular and fibroid. And, in saying this, I mean that if tubercles are developed, it would be from an inherited tendency, a "vice of blood" or diathesis. The treatment is to be stimulating and nourishing. A change of climate would be of very great benefit.

ACCORDING TO LES MONDES (Med. and Surg. Rep.), it appears that in Russia, France and England, consumption of tobacco amounts to one pound per inhabitant. In Italy it is higher, one and a half pounds. Austria comes next with two and two-fifths pounds. In the United States and Germany the consumption amounts to three pounds, in Belgium four and four-fifths pounds, while Holland has the privilege of heading the list with a consumption per inhabitant of more than five and a half pounds.—*Exchange*.

ARTICLE II.

REMARKS MADE BEFORE THE BROOKLYN DENTAL SOCIETY, MONDAY EVENING, FEBRUARY 12, 1883, UPON "CARIES OF HUMAN TEETH."

BY FRANK ABBOTT, M. D., OF NEW YORK.

Mr. President and Gentlemen of the Brooklyn Dental Society :

In discussing this subject, I want it distinctly understood that I do it with no feeling except that of a desire to get at the truth. If any gentleman, no matter who he may be, nor what view he may, take of this subject, will convince me that I am wrong, and that he is right, I will at once abandon my position, and as heartily advocate his as I now do my own. It seems, however, that I am to-night placed in rather an awkward position. The subject for discussion, as stated by yourself, Mr. President, and printed upon the notices for this meeting, is in the form of a question, as follows : "Etiology of Dental Caries, Acids or Germs! Which!" Now, without taking a second thought, I should say neither; but that second thought tells me that the beginning of the carious process in all teeth is effected by means of acids, produced by the decomposition of food, saliva, etc., which lodge around and between, as well as in depressions, or upon irregular surfaces of the teeth.

Perhaps before proceeding to consider this condition of pathology, it may be well for us all to understand alike a tooth in its physiological state. Chemically, the enamel of a tooth is said to be composed of about three and a half parts in a hundred of organic matter, and the balance ninety-six and a half parts inorganic, the dentine of about twenty-eight parts organic, and seventy-two inorganic in a hundred, and the cement about thirty-three organic and sixty-seven inorganic. I give this analysis, not that I think it absolutely correct for all teeth, as I have no doubt a different result would be obtained from the chemical analysis of the teeth of almost any two persons you might select; and I have no doubt, further, that considerable water would be found in every instance, reducing perhaps both the organic and inorganic portions, as we now understand it. But what I wish you to understand is the fact that a tooth is an organ, as perfectly and beautifully formed as the eye, or any other of the delicately constituted organs of the human body; that it contains as much organic material in proportion to its inor-

ganic as is consistent with the strength and resisting power demanded of it; and that a portion only of that organic material is possessed of life.

Now, with this understanding of the tooth in a physiological condition, let us examine it pathologically as to the process of caries, and try and understand if possible its causes and progress. Before, however, I give you my views, or rather reiterate my views (as they have changed but very little since they were given to the Dental Profession in 1879), I will take the liberty of quoting from other gentlemen who have investigated and written upon this subject since that time. In the January number of the Dental Cosmos appears an article by Dr. W. D. Miller of Berlin, which was read before the "American Dental Society of Europe," at Ostend, in the course of which article he says: "A mixture of 68.0 grams saliva x 1.0 bread, 0.5 meat x 0.5 sugar, kept for forty-eight hours at the temperature of the human body, generated more than sufficient acid to decalcify the entire crown of a molar tooth." * * * *

"There remains still to be answered the questions: Do bacteria ever penetrate directly into perfectly sound enamel or dentine, and do they perform any part in the decalcification?"

"I have already referred to the gradual diminution of the bacteria in number as we go from the outer to the inner margin of the preparation, (i. e., from the surface to the deeper parts of the dentine), till at the inner border but few or none of the tubuli are found to be infected. This fact, which leads us to the conclusion that the micro-organisms cannot penetrate beyond that point to which the tissue has been softened by the action of acids, may be readily confirmed by the examination of the softened tissue taken from different depths of a cavity of a carious tooth. * *

"The microscopic examination showed the decayed part to be filled with bacilli and micrococci, but in not a single case have I found them to pass beyond the softened (carious) into the sound dentine." This, mind you, in sections of dentine so thin that they were readily examined with a power of from 1,000 to 1,500 diameters."

In "teeth of poor structure" (poorly calcified) are found numerous irregular microscopic cavities (interglobular spaces). These cavities frequently communicate with one another, and, through cracks or fissures, with the surface of the tooth, in which case they may become filled with micrococci. The latter are completely confined within the cavities, and do not penetrate the normal dentine." * *

"Pieces of perfectly sound dentine, handled with great care, so as to be kept as free as possible from all foreign matter, were placed in small vials and covered with a drop of distilled water. These were then infected with leptothrix, bacilli and micrococci from decayed tooth-bone, and kept at a temperature of from 35 to 38 C. If, now, the organisms were capable of decalcifying the tooth substance, we should expect : 1. A softening of the tooth-bone. 2. The infection of the softened part. 3. An increase in the number of bacteria and cloudiness of the liquid; and 4, Since the bacteria could accomplish the decalcification only through the generation of an acid, we would expect an acid reaction of the liquid."

"These flasks we observed for four months. For the first few days an increase in the number of bacteria was apparent, but as soon as all matter upon the surface of the pieces and at the exposed ends of the entinal fibrils was consumed, the numbers diminished, and at the end of the four months only now and then a micrococcus was to be seen. A cloudiness of the liquid did not occur, an acid reaction could not be detected, nor were the pieces of dentine changed, either microscopically or macroscopically."

These experiments were repeated by Dr. Miller, with the addition of a greater quantity of decaying dentine, and the result was the same; not a bacteria to be found in or upon the pieces of dentine at the end of four months.

In the "general results" which he has arrived at he says: "The invasion of the fungi is always preceded by the extraction of the lime salts."

"The fungi have not the power either to penetrate or to decalcify sound dentine." Now, Mr. President and gentlemen, this is the same position taken by myself in the paper I read before the New York Odontological Society, and published in the Dental Cosmos in the February, March and April numbers, 1879. I quote :

"The indifferent elements originating through the carious process from enamel, dentine and cement, do not proceed in new formation of living matter, but become disintegrated and transformed into a mass crowded with micrococci and leptothrix. Micrococci and leptothrix by no means produce caries; they do not penetrate the cavities in the basis-substance of the tissues of the tooth, but appear only as secondary formations, owing to the decay of the medullary elements."

If these experiments have been performed in the careful manner

described by Dr. Miller (and I hardly think any one will question it), and such conclusions arrived at, it would certainly seem that we must look for some element aside from micro-organisms for the destruction of teeth by the carious process.

Now, Mr. President, I propose to present to you another side of the question :

In the January number, 1883, of the "New England Journal of Dentistry," is an article by Prof. Charles Mayr, A. M., of Springfield, Mass., detailing some chemical experiments which he has made for the purpose of establishing the theory that the carious process in human teeth was the dissolving of the tooth structure by some acid, or acids, or otherwise.

The following are the results of some of his experiments :

"No acids or soluble lime-salts are in the innermost decayed mass; hence no acetic, tartaric or lactic acid had dissolved much of the lime-salts, because the acetates, lactates, etc., would not have been washed out completely from the decayed mass, but a small amount would still remain, which, being soluble, would be easily shown by oxalate of ammonia acid."

"One large decay was sliced up into several parts, and the slices analyzed according to the above plan (details of plan all given in the article, to which I would particularly call your attention, as it is worth careful perusal) :

"First slice—Outermost, very gelatinous, soft layer.

Water, 58 per cent.; organic, 26 per cent.; lime-salts, 16 per cent.

Or, omitting the water : Organic, 61 per cent.; inorganic, 39 per cent.

Second slice—Middle, water not determined, because no longer reliable. (The specimen had become a little dry.)

Organic, 55.8 per cent.; inorganic, lime-salts, 44.2 per cent.

Third slice—Innermost, white, friable mass just close to the healthy dentine; scraped out with a soft iron wire, and very crumbling.

Organic, 32.1 per cent.; lime-salts, 67.9 per cent.

This decay which was analyzed in these slices shows, therefore, from the outside, a uniform advancement to the normal composition of the tooth. It shows that the lime-salts are removed, but not in any way which the acid theory demands. * * The tooth is disorganized, the soft, friable white decay is no longer organized, though chemically differing only slightly from the tooth-substance."

Now, Mr. President, if these experiments were conducted by Prof. Mayr with the single idea to get at the truth, and from his well-known ability and standing as a chemist, I hardly think any one will doubt that, then I would respectfully ask in what position the "acid theory" of caries is left? It would seem that, to every fair, unprejudiced mind, it must share the same fate that the "septic theory" has at the hands of Dr. Miller. With these two theories so effectually disposed of, I will now present my "theory." The more I study this subject, the more I become convinced that the first lesion under all circumstances is due to the action of an acid, which, in a merely chemical way, dissolves out the lime-salts from the enamel. "The *exact acid* might be very difficult to determine, for the reason that so many kinds of food are taken into the mouth which are acid themselves (such as the different kinds of pickles, fruit, &c., &c.), or, by fermentation, readily produce acids. This acid need not be strong, for as you are well aware, it is in many cases years and years held in contact with the same spot upon the tooth. Like "the constant dropping of water that wears the stone," the constant application of a very dilute acid will eventually dissolve the lime-salts from the most perfectly calcified enamel of a tooth. Perhaps the sour decomposition is assisted locally by the action of micrococci and leptothrix, although these organisms are known to prosper only in alkaline, and not in acid fluids. These vegetable organisms are present in innumerable quantities on the healthiest gum; tartar is crowded with them; and even in the highest degree of development of tartar *caries* is *absent*. In fact, when decayed cavities in teeth become filled with tartar, the carious process is as effectually stopped as it is possible for it to be, when such cavities are *filled* in the most perfect manner, with gold or any other favorite material." (Dental Cosmos, Feb., 1879).

In dissolving the lime-salts on the surface of the enamel, (or in any depression or irregular surface of a tooth where food lodges until decomposition occurs), the living matter in that tissue becomes exposed, and at once, under the effect of the acid, becomes more or less irritated. This irritation extends into the substance of the enamel beyond the point at which absolute destruction of the tissue has taken place, (which fact may readily be determined by diligent examination of specimens of carious enamel carefully prepared). Under this irritation, constantly applied, inflammation soon follows; this causes more or less of a swelling of the living matter, which effects the dislodgment

of the lime-salts—a melting down of the glue-giving basis-substance, and a bringing to view, under a power of from 1,000 to 1,500 diameters, the medullary or embryonal elements of the enamel. As the caries reaches the dentine, the same inflammatory reaction, with the swelling of the living matter, the enlargement of the canaliculi, dislodgment of the lime-salts, and melting down of the glue-giving basis-substance, becomes more intense, just in proportion as there is more organic and living matter in the dentine than in the enamel. These lime-salts are not necessarily dissolved and taken away, but may, and I have no doubt, as Prof. Mayr's experiments show, do remain mixed with this disorganized tooth-substance.

Upon examination of a specimen of acute caries, cross-section, at a considerable distance from the disintegrated granular mass (always to be found upon the surface of caries), may be seen enlarged canaliculi, some double, some treble, some four, six, eight, yes, even fifty times as large as normal. In many instances, near the surface, as many as six or eight may be seen to have joined together. The lime-salts between and around the canaliculi having been dislodged, the glue-giving basis-substance melted down, and forming partly nodulated protoplasmic bodies, in which the living matter is brought to view, in the shape of nuclei, with occasional threads running from one protoplasmic body to another. It is this living matter, so brought to view, which in my judgment has been mistaken by some observers for organisms. Many such enlarged canaliculi remain in a tooth after the supposed carious portion has been removed and the tooth filled. In such cases the acid irritant formerly in the cavity is removed, the inflammatory condition subsides, and the lime-salts become re-deposited. In other words these deep-seated lesions heal and become as solid and to all appearances as healthy tooth-bone as ever. Could this occur, gentlemen, if these enlarged canaliculi were filled, as some observers claim, with organisms of decomposition? It certainly looks to me a little unreasonable, to say the least.

Before closing, Mr. President, I would like to ask a few questions of those who hold to the "septic theory."

1st.—Why is it that the teeth of all persons do not decay the same?

2d.—Why is it that in ninety-nine cases out of a hundred the lower front teeth (on which may be found the greatest number of organisms of any in the mouth) do not decay, while all others in the mouth do?

3d.—Why is it that teeth with the greatest amount of lime-salts, consequently the smallest amount of organic substance (that upon which, it is claimed, the organisms subsist) do not decay sooner and more rapidly than the reverse?

4th.—Why is it that a pulp canal which has held a dead and putrifying pulp for many years, upon being opened is found to be as solid and free from decay as it was before the pulp died?

With these questions, Mr. President and gentlemen, I leave the subject for those who feel disposed to answer.

KEEPING THE TEETH CLEAN.

C. E. FRANCIS, D. D. S., M. D. S., N. Y.

It is a deplorable fact that the mass of mankind are culpably negligent in caring for their teeth.

Useful as are these organs as aids in the promotion of health, comfort, and longevity, they are often sadly abused, and as a consequence, not infrequently do they prove rebellious and become a source of dire annoyance.

Many people defer visiting a dentist until driven by relentless pain to seek relief, after having vainly exhausted the various domestic remedies suggested by sympathizing friends. By that time, in all probability, the offending member and perhaps several others are found to be in an exceedingly dilapidated condition; possibly ruined. In such cases very likely all the remaining teeth have become badly stained or coated with incrustations of salivary calculus; with gums purple and tumid, and ready to bleed at the slightest touch.

Some mouths, so far as the invasion of a tooth brush is concerned, are unexplored caverns of a miniature type; and others which receive but an occasional visit from this intrusive explorer, are not in a much better condition for the little care bestowed upon them.

But there are many, very many well meaning individuals who habitually brush their teeth, and some even declare that they perform this duty twice, thrice or four times daily, yet cannot keep their teeth from becoming stained or covered with "tartar."

Who has not witnessed cases where the teeth, after having received a most thorough cleansing by a dentist, have within a few months after, been again covered with accumulations as repulsive to the eye

as if they had never been cleansed? And yet, when expressions of surprise follow such discoveries, assurance is given that the tooth-brush is regularly used!

It is certainly disheartening to a dentist who, after having taxed his best efforts to save from total destruction a set of teeth nearly wrecked by abuse or neglect, to subsequently find them again stamped with stains, and their interstices loaded with extraneous matter.

On the principle that "like causes produce like results," teeth ever so skilfully treated by the dentist, if in this manner are constantly menaced by invasions from such mischievous elements of decalcification, what wonder is it if fillings occasionally become undermined with decay and prove failures?

"Why cannot I keep my teeth free from 'tartar'?" is a question frequently asked by discouraged patients. "It is not from lack of brushing," they say. To express a doubt as to *thoroughness* on their part is a delicate thing to do, yet proofs are sometimes painfully apparent to warrant such a doubt. Undoubtedly many individuals imagine they are particular in this respect when they are not.

The fact is, very few persons know how to properly manipulate a brush; nor do they know what sort of brush to select. Scarcely one in ten of the brushes manufactured are fit for use, and this statement is no exaggeration. Many are too large and unwieldy to be successfully managed, and would be more suitable for "nail-brushing." The majority of them are also too compact; some too rigid and not sufficiently pliable to be useful, while others are too soft and little better than rags. The brush for service should never be broader than the medium sizes usually sold, nor over two-thirds their length. The bristles should be elastic and their ends trimmed in serrations, or "notched"—this form being best adapted to the shape of the teeth.

In use the brush should be pressed firmly against the teeth, commencing with the back ones at their cervical borders, and with a semi-rotary motion slowly brought forward and towards their grinding edges in such a manner as to force from between them accumulations that have found lodgment there; also allowing the bristles to come in contact with all enamel surfaces possible to reach.

Rapid horizontal dashes should be avoided. A brush furiously driven across the teeth touches only points of enamel that least require rubbing, leaving the accumulations that load their interstices undisturbed or unmolested.

It is not the frequency of brushing that best preserves the teeth, but the degree of thoroughness with which it is done. The time for performing this duty most effectively is just before retiring for the night. During the twelve hours interval from the evening meal to the morning repast, particles of food retained about the teeth and subjected to the warm humid condition of the oral cavity, cannot fail to become decomposed or fermented, thus breeding an insidious foe that, night after night, besieges the enamel walls which, unless of extraordinary compactness, will sooner or later give way to its destructive forces.

There is no objection to cleansing the teeth when making the morning toilet, yet if thoroughly cared for the night before, they require comparatively little of such attention in the early part of the day. To brush them more frequently than this is a needless task.

"Prevention" being considered better than "cure," it would seem an important part of the dentist's duty to give such instruction to his patients as will enable them to keep their teeth in a condition of cleanliness.

How many are sufficiently particular in this respect?

Original Translations and Abstracts.

AN OPERATION FOR PYONEPHROSIS.

[Concluded from March Number.]

The analysis of this case is interesting, both from an anatomical and from a clinical standpoint. The cause of the renal changes first demands attention. From the history, as given by the patient herself, we could only learn one thing—that in all probability a chronic pyelitis of the left side had existed since early youth. The cause of the accumulation of urine we recognise only by combining the clinical history and the autopsical appearances.

In no part of the urinary canal, from urethra to the origin of the ureter from the pelvis, could any change in the lumen of the tube be found, neither narrowing nor dilatation.

The insertion of the ureter in the anterior wall of the pelvis of the kidney above its deepest part, together with the course which it apparently ran in the anterior wall of the pelvis—these we hold responsible for the accumulation of urine in the left kidney.

From such an arrangement of the parts, the pressure of the fluid that collected in the kidney must have narrowed the insertion of the ureter, and occluded it more and more with increasing pressure.

I fancy that this "*retention arrangement*" in the renal pelvis was produced in a manner similar to that occurring in the urinary bladder, independent of prostatic hypertrophy. Thus, if the elasticity of the inner coat of the bladder be impaired, either by chronic catarrh or by senile changes, the power to force the urine into the urethra becomes insufficient. In this way the reservoir is incompletely emptied, and hence enlarges. If this enlargement be partial, having a sac-like form behind the vesical urethral opening, so much of the hydrostatic pressure as now acts upon that part of the urethra which is prominent in the bladder, induces compression of the urethra's lumen, and in this way works against the component pressure exerted on the vesical wall, which pressure, normally, should enlarge the ostium urethræ. If both pressures be equal no urine can leave the bladder. Transferring similar conditions to the renal pelvis, we readily see how a pyelitis that existed from youth could lead to an enlargement of the pelvis by diminishing the elasticity of its walls. If the pelvis fills behind the ureter's insertion, the latter will be steadily pushed forward, until it finally lies in the anterior wall of the pelvis. And if the process continues, the anterior wall will be so closely approximated to the posterior wall of the ureter that the latter will seem to run its course far inside the anterior pelvic wall.

If such a ureter be cut longitudinally, it will look as if its posterior wall extended, as a valve, fully into the lumen of the renal pelvis.

When the ureter takes this course its posterior wall is subject to the pressure of the fluid in the pelvis, and thus the lumen of the ureter is occluded.

This state of things leads, primarily, to a diminished flow, and subsequently to complete retention. The correctness of my idea that there existed an enlargement of the pelvis rather than any anomaly of insertion of the ureter, was proven by finding an enlarged right pelvis without any trace of mechanical obstruction to the flow.

Of special practical importance was the enormous distension of the calyx compared to the moderate dilatation of the renal pelvis. In consequence of this state of affairs a calyx was opened instead of the pelvis.

To have struck the latter the incision should have been made to the

inner side of the descending colon, *i.e.*, should have been carried further the linea alba than my incision. This shows that—apart from floating kidneys—there are cases of pyonephrosis where one is forced (contrary to the prevailing opinion) to make an intra-peritoneal incision into the organ.

That this can be successfully accomplished, and that, too, without first artificially uniting the cyst with the abdominal wall, is proven by this case, wherein not even a trace of peritonitis was discoverable.

Although our aim is, to be sure, the opening of the pelvis, yet **an** incision into a calyx may also lead to the desired result if the opening communicating with the pelvis be sufficiently large, or if it can subsequently be made so by dilatation by means of the thermocautery knife.

Another point of the highest importance, and upon which the prognosis of most of these cases depends, is the condition of the fellow kidney. Here we found grave lesions in the right kidney that were not diagnosticated during life, because of the *normal quantity of urine*, absence of cardiac hypertrophy, and because of the strong and well-nourished state of our patient.

Perhaps an examination of the urine for the *amount of urea* would have given us some intimation of it.

This fact must serve as a never-to-be-forgotten warning to us not to attempt, as a rule, extirpation for hydro- or pyo-nephrosis, even though the urine be sufficient in quantity; for the loss of the smallest portion of parenchyma capable of secretion may lead to a fatal uræmia, if the fellow kidney be not able to properly perform its function.

We must mention as a fact of great theoretical as well as practical interest the absence of any cardiac hypertrophy in spite of disease of both kidneys, which must undoubtedly have led to as great an occlusion of the tubular structure as would have been caused by advanced granular atrophy of both organs.

In spite of this, however, the amount of urine was uninfluenced by absence of hypertrophy of the heart.

Now, when we add to this that the ordinary conditions for cardiac hypertrophy were present, *viz.*, a healthy and vigorous constitutional condition and an early development of the disease, we regard these facts as anything but favorable to the "*mechanical theory*" of Traube, according to which renal vascular changes lead to increased arterial pressure, and hence to cardiac hypertrophy.

The probability is, that the disproportion between the cardiac muscular power and the resistance in the vascular system of the kidneys was responsible for the fatal ending in our case.

Evidently the heart had preserved but a labile equilibrium prior to the moment when, the cardiac muscle refusing to do its work, the arterial tension sank to a minimum and the pulse-rate rose rapidly.

Heart-failure was the immediate cause of the uræmia.

What element was it that so suddenly and direfully annulled the heart-functions on the night between November 3d and 4th, when all had been normal (with reference to that organ) during the evening of the 3d?

I believe that the morphia injections given that night may reasonably be held accountable therefor.

Even if there were other weakening elements, such as four weeks of fever, prolonged use of chloroform as a narcotic and imperfect digestion of the food, still the malady only assumed a fatal form after the hypodermatics of morphine. The action of this drug was the last drop that caused the bucket to overflow.

These, then, are the practical deductions from the case in question:

I. In a case of hydro- or pyo-nephrosis of *one* side, even if the secretion be normal and there be no cardiac hypertrophy, we must always be prepared to meet disease of the fellow kidney.

II. Hence the formation of a fistulous communication between the pelvis of the kidney and the external world is preferable to extirpation when renal disease has been diagnosticated.

III. Should cystic enlargement of a calyx be more prominent than the pelvic dilatation, we may be compelled to operate, even though the peritoneum be wounded. And this operation can be successfully performed without first artificially uniting the tumor with the abdominal walls.

IV. The use of narcotics must be restricted, on account of their weakening the heart power—in all forms of renal disease where considerable resistance is offered to the circulatory current.—*Berl. Klin. Wochens.*, No. 51 : 1882.

A CORRESPONDENT of the *British Medical Journal* (Jan. 13, p. 90) states that he has found the application of a strong solution of chromic acid, three or four times, by means of a camel's hair pencil, to be the most efficient and easy method of removing warts. They become black and soon fall off.

FUNGI OF TOOTH CARIES.

BY DR. W. D. MILLER, BERLIN.

Translated from the *Centralblatt of Medical Sciences*

In the microscopical section of the Physiological Institute, investigations have been made by me on the fungi of tooth caries, which bring me to the following results:

1. The acids which are generated in the mouth through fermentation, withdraw the lime salts from the teeth.

2. In the tissues of teeth from which the lime salts have been withdrawn by the action of acids, a prolific growth of fungi (*Spaltpilze*) is found.

3. *Leptothrix* is found, with rare exceptions, only on the surface and in the superficial layers of the tissue; *Bacilli* (*Stäbchen*) penetrate deeper, and micrococci furthest of all.

4. In the tooth tubuli we often find an undoubted gradual transition of the long bacteria into shorter ones, and these again into micrococci.

5. The invasion of fungi is always preceded by the action of acids.

6. The fungi are not able to withdraw the lime salts from the teeth, and a true infection of a thoroughly healthy tooth by one that is carious, is therefore impossible.

7. The fungi cause decay of the external portions, and pathological changes of the internal layers of the living tissue.

I reserve the right to report more fully on the intended experiments.

Selections.

EXTIRPATION OF CANCER OF THE FACE,

INVOLVING INFERIOR MAXILLARY BONE, FLOOR OF THE MOUTH (RIGHT SIDE)
SUBMAXILLARY AND PAROTID GLANDS.

PATRICK S——, fifty-five years of age; farmer; born in Ireland, consulted me on the 6th of December last in reference to a tumor situated over the middle of the right lower jaw. He was suffering great pain from the growth; but otherwise seemed to be in good health, excepting that he had a very feeble pulse. He appeared to be anxious that some operation should be performed, as the tumor was rapidly in-

creasing in size, and he found great difficulty in taking nourishment.

Upon examination I found the most prominent portion of the growth circular in shape, and about one and a half inch in diameter, with ulcerated surface. The remainder involved the inferior maxillary bone, right floor of the mouth, and the submaxillary and parotid glands.

After explaining to him the danger attending so formidable an operation, and the probability of its return, I told him that I would consult with his physician, Dr. Alex. J. Rooney, which I did on the following day.

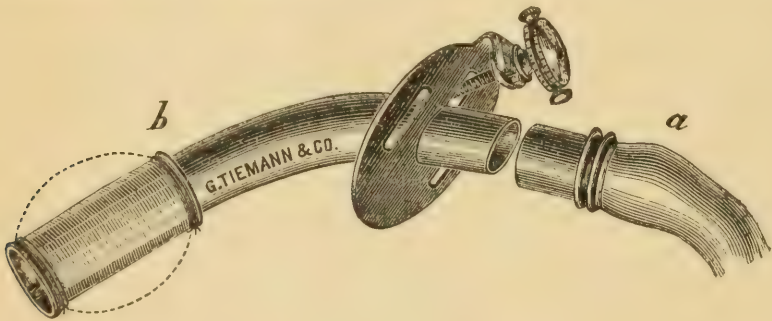
Dr. Rooney informed me that he had known the patient several years, and that his general health had always been good. Three years ago he had attended him in an attack of double pneumonia; and two years ago he had removed an epithelial growth from his lower lip, when the wound healed readily. Last April Mr. Smith consulted him about a small tumor situated in the soft parts over the right lower jaw, which was well defined and movable. Upon examining the jaw, he discovered a decayed tooth, which he directed should be removed and the tumor painted with tincture of iodine. Under this treatment the tumor disappeared and did not return until about two months prior to his consulting me, when it commenced to grow rapidly, involving the surroundings in all directions.

On December 7th I visited the patient at his home in New Utrecht, and finding him still anxious for relief, determined to operate on the following day. The gentlemen present and assisting at the operation were Drs. Spier, N. Ford, Rooney and Silberman. Careful examination of the heart detected no organic trouble, though the pulse was remarkably feeble, but it improved during the administration of ether.

After placing a ligature upon the common carotid artery and internal jugular vein, I extended the incision upward around the lower portion of the tumor to the lower border of the inferior maxilla, following the lower border of this bone to its symphysis, and dividing the lower lip by a vertical incision. Commencing again at a point anterior to the tumor, the incision was carried above and around the upper and posterior portion, to the lower border of the jaw; thence around the angle and posterior border of the ramus, half way to the condyle. The incision was then continued around the posterior and

lower border of the tumor, to the point where I first started. The tumor was then detached from the inferior maxillary bone, which was found to be extensively involved.

The hemorrhage being quite profuse, in spite of the previous ligation, it was considered advisable at this point to perform tracheotomy, and continue the anæsthetic through a tampon. The instrument devised by Dr. A. Gerster was used for this purpose, and it worked admirably and proved a great convenience. It would seem impossible to improve upon this instrument, and for the information of those who may not have seen it, the accompanying illustration is introduced.



The diseased portion of the lower jaw was now removed by sawing and cutting through near the symphysis and at the angle. Following this the floor of the mouth (right side), including the submaxillary glands, and finally the parotid gland, with all connecting diseased tissue, were thoroughly removed. After the application of carbolic acid solution to the wound, the skin was drawn over and united, with only slight tension.

The patient speedily rallied from the operation, and on the third day was able to sit up. There were no unpleasant symptoms from the ligation of the vessels. The temperature did not reach above 101° , but the pulse was very feeble and about 100. The nourishment consisted of beef-tea, brandy, milk and eggs. On the fourth day he refused the quinine and stimulants, and the attendants stated that it was with great difficulty he could be prevailed upon to take any nourishment. By the ninth day he refused all food, and I passed a tube into the stomach and injected some beef-tea and brandy. The patient resisted so much that it became necessary to have him held by the attendants. After this he took nourishment willingly, and in considerable quantity, until the twentieth day, when hemorrhage took place from the wound, the patient losing a pint of blood before it was

discovered. Styptic cotton was applied by one of the attendants, and a compress placed over the wound. Upon removing the compress next morning, I could not discover the origin of the hemorrhage. After my departure the patient again refused nourishment.

About a week after the operation, the integument covering the wound commenced to slough, so that the wound was entirely uncovered. The tracheal incision also refused to heal. During the entire period there seemed to be no disposition toward granulation or healing; and the patient becoming more and more exhausted, died on January 1st, twenty-five days after the operation. The dressings consisted of carbolized oil, iodine, iodoform, and nitric acid solution, but they seemed to have little effect in promoting the healing process. Friends would not permit post-mortem examination.—G. WACKERHAGEN, M.D., in the *Medical Record*.

GOLD vs. AMALGAM.

Operative dentistry is now divided into two factions, "Conservative" and "New Departure," each party in every journal, convention, association, and by private office intercourse, is putting forth its respective merits. These agitations have now been continued a length of time until the innocent public are, to a great extent, converts to one or the other theory. The Conservative faction maintain that gold is the only *par excellence* material for a safe and permanent preserver of carious teeth; while the other faction as tenaciously maintain that plastic materials, especially tin and silver alloys, rival gold as universal filling. Able practitioners, of long experience, arrive at different conclusions. So it has been and ever will be in every department of science. Each mind is a world unto itself; therefore it generates theories peculiar to its own reasoning, and molds a corresponding manifestation. With the same means at command, one person, with a reputation for common sense and years of practice, becomes only a medium mechanic, while another, in the same situation, surprises the world with his productions. One surgeon will declare, upon honest convictions, that the operation cannot be performed without destroying the patient's life, while another, of less experience but better judgment, declares to the contrary, and is successful. Napoleon's campaigns, under his supervision, were successful, when, if guided by one of his selected marshals, would have been disastrous.

A. T. Stewart, alone in his office, planned and guided to successful consummation, commercial enterprises over combined competitors. A hundred commercial geniuses united were beneath his level.

After these desultory observations, let us consider the respective merits of the two factions that stand arrayed as opposing forces in the science of preserving the natural teeth.

First—Is not gold the purest and most ductile of all the known metals? Most assuredly. How do we know this? Because its resistance to oxidation is greater; in fact, acids that soon oxidize silver, or silver and mercury combined, are not perceptible when applied to gold. Are not oxides of many metals poisons? Most assuredly. Then, being poisons, are they not deleterious to the secretions; deadly destructive to vitality of osseous tissue? Assuredly. This being the case, should they not be avoided, if not altogether, as much as possible? It seems to me that an affirmative answer would be correct; but the New Departure fraternity assert that amalgam preserves teeth when all other fillings, especially gold, fail, and therefore lose sight of everything else. They have tried both, therefore they know all about it. People are carrying tons of amalgam in their teeth and still live. That settles it. They further argue that gold fillings, solidified as much as the mallet and condensers will admit, and polished to mirror brightness, soon leak, decay sets in, fillings loosen, drop out,—patient returns within a year after the operation, with lump of gold, saying, “Doctor, that fine filling has come out; here is;” find tooth very much decayed,—excavate anew, fill with amalgam; no more leakage, stays well five or ten years. This proves that gold fillings, however well compacted, are “trash.” Then the New Departure cock flaps his wings and crows long and loud, until the whole country hears him, from Maine to Georgia. Now, why did his gold filling leak? for assuredly he condensed it enough. Was it packed closely against the walls of the cavity? Apparently it was, though in reality it was *not*, for if it had been well packed against the cavity walls throughout, no leakage could be possible. “Aye,” says the apostle of New Departure, “that is the very difficulty,—so rarely can it be done.” Well, let us see: You have made, say two or more retaining cuts in your cavity, forced your gold into these undercuts, then continued filling with condenser of the usual size, until the cavity is filled and contoured, and as much as the occasion requires.

The filling, though very *nice*, is a failure, merely because you have condensers three times too large ; therefore the filling is diverted, in each layer, to the center,—in fact bailed up. It does not hug the sides of the cavity only in places, consequently moisture works in, caries goes on, and shortly the *splendid* gold plug drops out. I know how it is from experience. My fillings have dropped out lots of times, to my chagrin, and to the annoyance of my patients. I did not abandon gold, but looked for the cause of failure. After ascertaining the cause, I set out on a new departure principle ; that is, I threw aside the coarse condensers usually advertised, substituted them with fine points such as are generally used for root fillings, bent them into the required shapes, took gold foil, Nos. 4 and 5, cut each leaf into three or four slips, rolled each slip loosely, then cut them into pieces of different sizes ; after heating them to redness, I condense one piece in place, holding it there firmly, adding on piece after piece, closely condensing against the sides of cavity, which only fine points can do, then when sufficient gold is in place, condense as usual, pressing firmly one side with one hand, while malleting the other, this secures against any possible vibration. The hand mallet is generally preferable to the automatic, especially for frail teeth.

My experience convinces me that this system, if well followed, will be effectual against leakage, or danger of fillings giving way. Screws are great auxiliaries where there is a lack of base or want of support. Dentists should avoid cutting away healthy dentine, and use screws in lieu thereof. For my part I am disgusted with this New Departure literature. I hope the genius of Conservative dentistry will choke it out, as tares from among wheat. Plastic fillings are useful, in fact indispensable auxiliaries ; but to give them precedence over gold, is to declare the moon's cold magnetic rays more conducive to health and vigor than the warm electric rays of the sun.—*Dr. U. Smith, in the Ohio State Journal.*

KOCH'S BACILLUS AND ITS LESSONS.

The announcement by Koch of the discovery of a bacillus, to whose entrance into the system specific tuberculosis is due, is likely to prove one of the most important in the history of medicine. It is true the existence of such a parasite has been quite strongly combatted by authority which commands respect, but a careful weighing of the evi-

dence, *pro et con*, must, we think, satisfy the judicial mind that Koch has made out his case, and that the tubercle-bacillus is one of the facts of science. Regarded purely as a theory, it certainly furnishes a satisfactory explanation of the pathological conditions of which it is declared to be the immediate cause.

Koch's experiments, as reported, are exceedingly interesting as well as convincing, the latter property being due to the careful attention to detail and the elimination of every conceivable factor likely to vitiate results. Herein they differ from the generalizations of Pasteur. The latter, for instance, has not in every instance demonstrated the existence of the bacteria which he has assumed. Having isolated the specific cause of charbon, or splenic fever, in cattle and sheep, he assumes, but does not demonstrate, the existence of an analogous cause in such diseases as scarlatina, diphtheria, yellow fever, etc. It is true the grounds for such assumption are very conclusive, but it is not truly scientific to assume. Koch has pointed out that in employing the secretions found in dead, for introduction into living animals, with a view to reproducing the fatal disease, Pasteur has committed the error of introducing with his hypothetical bacillus septic material and the cadaveric alkaloids, which latter it is well known are of a very deadly nature. In his experiments he (Koch) has assumed nothing, but has clearly isolated the bacilli, and by their introduction into other animals has produced an affection which cannot be duplicated by inoculation with any other material, even though it be of a very septic nature. Pasteur, moreover, in selecting his animals, has not been careful to first demonstrate that the animals experimented with have in every instance been susceptible to the specific disease sought to be propagated; and not being himself a physician, has not been qualified to determine whether the resulting affection has been the true disease, or pyæmia or septicæmia. Koch has, as we have said, avoided all these elements of error.

Granted that the tubercle-bacillus is a fact, what are we to do with it? On the answer to this question rests the future treatment of consumption, prophylactic and curative, and the ingenuity of man will be directed both to the prevention of its entrance into the system and to its destruction in cases in which it has inadvertently, or in spite of prophylactic measures, found an entrance. When the means to these ends have been discovered, consumption will occur only as a result of negligence, and will prove fatal only as a result of improper or insuffi-

cient treatment. When these means shall have been discovered, medicine will have purged itself of the greatest of its opprobria.

Although the means of prophylaxis and cure, above referred to, are still veiled from our eyes (for we have faith in their existence), the discovery of the bacillus and of its nature has already directed an intelligent treatment of consumption. It is fair to assume that it, like the germs of other diseases, is more or less constantly present in every community, floating about, as it were, seeking an opportunity to enter into systems in which it may propagate and work its mischief. It follows, then, that something more than the bacillus is necessary to produce consumption; it must have an appropriate soil. That soil, as is the soil in which other germs of disease take root and bring forth fruit, some thirty fold and some sixty fold and some an hundred fold, is characterized by an absence of the power of vital resistance. We know that the local lesion is by no means the first symptom of the affection which develops into full-blown tuberculosis. Preceding this there are dyspeptic disturbances, loss of appetite, emaciation, and a lowering of the vital forces. While these may not properly be a part of the consumption, they are what prepare the soil for the growth of the germ. It is fair to assume that the air-passages of those brought in contact with tuberculous patients frequently contain bacilli, which, being met at the portals by the vital resistance furnished by the system in its average health, fail to effect an entrance, degenerate and are thrown off. It would follow, therefore, that the maintenance of the system at its full standard of vitality is the most effective prophylaxis against the ingress of the bacillus, which, when it gains admission, acts as a foreign body, and sets up the circumscribed inflammation which constitutes solidification, and which in turn breaking down causes the tuberculous cavity.

The discovery of the tubercle-bacillus antagonizes the theory of the hereditary nature of consumption *per se*. While in very many instances the disease appears to run in families, it will hereafter be more correct to say that the tendency to it is hereditary, or, rather, that the weakened power of resistance to the entrance of bacillus is transmitted.

The etiology of consumption being thus referred to a specific cause, the result must be to strew the shores with additional wrecks of theories of treatment. From Salisbury's rare beef to Churchill's hypophosphites the therapeutic measures are legion, for they are many, and these must all give way before the agent yet to be discovered,

which shall have the power of entering the system, and engaging the bacillus in combat, lay it low. The treatment of consumption by means of an atmosphere holding germicides in suspension must, in the nature of the case, attract renewed attention through the discovery of Koch's bacillus. It would seem that in this direction lies the means which shall enable us to save the hundreds of thousands of lives which are annually lost from consumption. Many of the agents now employed will doubtless remain useful as means for combating symptoms, but the curative agent proper will be a germicide. Koch has covered himself with a fame scarcely secondary to that which surrounds the name of Jenner, but the blaze of glory and fame immortal awaits him who discovers the agent which shall ferret out the microscopic bacillus in its fastness in the tissue of the human lungs, and, giving it battle, shall destroy it, root and branch.—*Therapeutic Gazette*.

VOMITING OF PREGNANCY.

Professor Horwitz, of St. Petersburg, has recently issued a monograph on this subject, which has received a lengthy notice in the *Medical Press and Circular*, from which we take the following remarks on treatment: The legion of drugs recommended is the best proof of their worthlessness—alkalies, alkaline waters, bismuth, laudanum, cerii oxalas, sinapisms, blisters, chloroform or either spray over epigastrium and back, ice-pills, iodide of potassium, bromide of potassium, nitrate of silver, electricity, etc. Besides this, they can only be employed in the early stages of the affection. Professor Horwitz recommends absolute rest in the horizontal posture, and in a darkened room; the diet to be nourishing and carefully regulated. Nutrient enemata are counseled under the following regulations:

1. One or two hours before their employment the colon should be washed out with warm water.
2. Only small quantities should be injected at once (about three ounces at a time).
3. Frequent repetitions of them should be avoided, in order that irritation may not be set up.
4. In case of great prostration, two or three spoonfuls of good wine (sherry or port) should be added.
5. In those cases in which enemata are not retained, a few drops of tincture of opium should be added.

He considers the "gynecological" treatment as of great importance. Should there be inflammation, depletion will be useful. Scarification is recommended rather than leeches. Nitrate of silver to the portio vaginalis he does not consider very useful, and on this point he differs from Professor C. Braun, of Vienna. Mayer's method of repression, by means of laminaria, he recommends. He has twice employed Copeman's method without effect. He looks upon artificial abortion as the only resort in some cases, and speaks of it as follows: In a case of uncontrollable vomiting, in which all means of treatment have been employed in vain, while the disease grows gradually worse and threatens the life of the patient, then the only "chance" of saving her is the interruption of the pregnancy, *i. e.*, artificial abortion must be induced; and, indeed, naturally, in view of the clinical symptoms, and of the height of the danger, the timelier this is done the more rational is the doing of it. Artificial abortion is thus carried out: After preparation of the genital organs by carbonized injections and dilatation of the cervix, he separates the ovum from the uterine walls by means of the uterine sound. He only ruptures the membranes when the process of abortion is delayed. In eight cases in which he has practised this method he has never seen portions of the placenta retained, while the loss of blood has been but slight, in fact, less than in spontaneous abortion. Transfusion he looks upon as an open question.—*Med. and Surg. Reporter, January, 1883.*

THE NEW ANATOMY ACT.

On the 1st instant there came into force the Provisional Act "to amend and consolidate the various Acts respecting the study of Anatomy." It is a new departure in the way of legislation for the prevention of body-snatching, and if faithfully carried out will, it is to be hoped, prove effectual. As it is very important that all members of the profession in this Province should be acquainted with the provisions of this Act, we shall draw attention to the various sections of which it is composed. The Province is first of all divided into two sections, the "Quebec Section" and the "Montreal Section," which shall comprise such judicial districts as may be specified by the Lieutenant-Governor. Then, the Lieutenant-Governor is to appoint an Inspector of Anatomy for each of these sections, and a Sub-Inspector of Anatomy for each judicial district except those of Quebec and

Montreal, at which places the Inspectors themselves act as such. The next section provides that every unclaimed body in institutions receiving Government aid shall be delivered, through the Inspectors, to the different schools of medicine. To prevent such action a claim for the corpse must be made inside of twenty-four hours of the person's death, by a relative within the degree of cousin-german. All superintendents or directors of institutions with public grants, and all coroners, are obliged to immediately notify the Inspector or Sub-Inspector of there being an unclaimed corpse under their control. Provision is made that the Inspectors keep registers of all such notifications received ; that they impartially distribute to the schools of medicine the corpses thus received, in proportion to the number of their students ; and that they inspect the dissecting rooms and order the decent interment of the remains. The Inspector is to receive \$10 for each body so supplied, in addition to cost of transport and burial. A fine of from \$100 to \$200 is imposed upon the Superintendent of the above-named institutions who fails to notify as provided in the Act ; and a similar fine is laid upon any school of medicine which shall be found to have received and used for dissection any body not procured through the Inspector. The Inspector or Sub-Inspector is bound to appear within eight days before the *curé*, or clergyman, of the parish wherein has occurred the death of any unclaimed person, and to make an entry on the death-register of the date of death, etc., and of the manner of disposition of the body. All previous Acts are repealed.

We believe this law will work well, will provide an ample supply of dissecting material to all the schools, and at the same time put a stop to the disgraceful desecrations of graveyards and vaults, which have of late become so common. The principal defect in all previous Acts, and which we have had occasion several times to point out, has been the absence of any penal clause with reference to non-notification of the existence of unclaimed bodies in our public institutions. A very false feeling on this subject has long existed among the directors of several of these establishments ; but we trust now that their attention is strongly directed toward the necessity of their performing this public duty, they will loyally comply with the terms of this enactment. It only remains for the Government to make judicious appointments of the persons to fill the important post of Inspector, and we hope that these officials will at once enter vigorously upon the

performance of their public functions, and with impartiality—without fear, favor or affection—see to it that the intentions of the law are carried out in every institution in the Province which gets a grant from the public purse. On the other hand, let the schools of medicine accept cordially the legislation thus effected in their best interests: let them insist upon their rights as defined by the law, whilst at the same time refusing to countenance in any way the illicit traffic in bodies which has hitherto prevailed, only through the incompetency of officials and the refusal of responsible persons to furnish the assistance they will now be obliged to give. Let both parties concerned in this matter unite to put this Act fairly into operation, and body-snatching will soon be numbered among the lost arts.—*Canada Med. Journal.*

Editorial.

RESIGNATION.

The medical editor regrets that he is obliged to discontinue his connection with *THE INDEPENDENT PRACTITIONER*; but this is rendered necessary by the pressure of other work which has a prior claim. The fact that he is already in arrears with various duties on account of months of sickness in his family, and that it would be unfair to the readers of *THE INDEPENDENT PRACTITIONER* as well as to the Columbia Publishing Co., for work to be done in a hurried style, which would be derogatory to this journal's standpoint—all these causes combined compel him (though very reluctantly) to give up his position.

The former genial editor, Dr. Wilkerson, has been very kind in aiding nearly all the work done since January, and it would be ungraceful not thus publicly to thank him.

Those who have contributed to the columns of *THE INDEPENDENT PRACTITIONER* are tendered our hearty thanks. Those who have supported the paper hitherto will, we trust, support it yet more energetically in the future.

L. H. HUNT.

New York, April 25, 1883.

"A NEW ANÆSTHETIC."

M. BERT discovered that prolonged anæsthesia could be induced by a mixture of nitrogen protoxide, 85 volumes, with oxygen, 15 volumes, if the application were made in a closed chamber and under certain pressure. M. de St. Martin, says the *Journal of Chemistry*, has obtained the same effects at ordinary pressure, by adding to the mixture a small quantity of chloroform. M. de St. Martin has not made a very astounding discovery, as a certain class of dentists have, under the name of "Vitalized Air," for some time employed a mixture of chloroform vapor with nitrous oxide, to produce anæsthesia. With this a state of narcotism is rapidly induced, and it may be maintained for some time—if enough of chloroform or ether is used. But so far from its providing any additional immunity from danger, it adds to any possible hazards from the nitrous oxide gas, all the risks attendant upon the other agent. That the former will asphyxiate, every intelligent dentist knows; and hence in giving it he pushes the administration to the utmost limit that anæsthesia may be reached before suffocation ensues. Any medical man can estimate the relative safety of such a method of giving chloroform or ether, even though the vapor may be diluted with another gas.

DENTAL PATHOLOGY.

DR. W. D. MILLER, of Berlin, is about to commence a new series of observations and experiments in dental pathology in Koch's laboratory, and will have the benefit of the experience advice and co-operation, of that famous observer. The dental profession in America will reap the earliest benefits from Dr. Miller's studies, and we hope to be the medium of their communication. It is little more than a year since he was first introduced to American readers, and during that time he has secured an abiding place in our literature. Next month we shall present a valuable paper from his pen upon Dental Caries.

ONE RESULT OF KOCH'S INVESTIGATIONS.

In a letter to the *Philadelphia Medical Times*, Dr. Formad states that by a German Imperial order, phthisical patients in the military hospitals are as carefully isolated as though they had small-pox, and infection is as sedulously guarded against. The disease is regarded as eminently contagious, and consumptives are avoided. In this country we

already begin to see the effects of belief in a specific tuberculous contagion. Instances are on record where people suffering from phthisis have been shunned, and even neglected by their friends, through fear of inoculation. The moral effects of such a social ostracism cannot but exert an evil influence upon an invalid. When a person afflicted with one of the most common disorders of our day becomes an object of dread, instead of active sympathy, the horrors of phthisis are increased a hundred fold.

PAIN OBTUNDERS.

When dentistry shall have discovered and put in use something that shall, without injury to the tooth itself, temporarily suspend sensation in its tissues, the dentist's chair will be robbed of its terrors, and it will be possible to save many teeth that are now allowed to go to destruction. Whether or not such a thing exists, but as yet remains hidden in the womb of time, is a matter for conjecture. Certain it is that no great progress toward a consummation so devoutly to be wished has yet been made. Mysterious preparations, invested according to their sapient discoverers with magical powers, have been loudly advertised, only to disappoint their too credulous purchasers. All kinds of the most dissimilar drugs have been empirically tested with nearly uniform results, and those who have experimented the most persistently have usually returned sooner or later to primal principles, and have repinned their faith to a sharp instrument and a steady hand in the excavation of carious teeth.

Yet there are agents which will at certain times and in some cases materially lessen the amount of pain. If the long list of obtunders were always at hand, it is quite possible that among them might be found something adapted to, and measurably efficient in each case. The worst of the matter would be that, until we know more of the nature and cause of tooth caries, one would be obliged to try each of his preparations in succession, and of course the right one would be the last in the list, while all its predecessors would aggravate the pain instead of decreasing it. Chloroform sometimes quiets and sometimes distracts. Carbolic Acid will at times almost entirely obtund sensitive dentine, and upon the next trial it is found entirely without virtue. Chloride of Zinc has been known to quite subdue an exceedingly tender tooth, while at the next application it raised the patient out of the chair and caused his very toe-nails to quiver in agony.

current of hot air has in one case exercised a very soothing effect, and in the next has resulted in the fracture of nearly every commandment of the decalogue. Just why these varying effects are observed from the same agent no one is able to say, for they follow no definite rule so far as our present knowledge goes. Alkalies are as uncertain as acids, and sedatives are not more reliable than stimulants, so that we long ago ceased our search for the long sought universal obtundant. But during all the heart-breaking vicissitudes of this exasperating experience, one little bottle has retained its position in the operating case, and to it we have returned when human hopes were blasted and the desires of man failed, because in it we have occasionally found relief from the nightmare which pursues us. It contains that local anæsthetic mixture so long known to the medical world, Sulphate of Morphia and Camphor gum in equal proportions. Ground together they mutually deliquesce and form a very convenient preparation, which has the negative virtue of doing no harm, if it accomplishes no good.

“THE INDEPENDENT PRACTITIONER.”

We are under obligations to a number of our dental contemporaries for unsolicited favorable notices, acts of kindness and appreciation which we shall not soon forget. We hope to present much more matter which shall meet the approbation of those most competent judges. Besides other valuable articles, we have now in hand two of unusual interest, from the pen of that most indefatigable student, Dr. W. D. Miller, of Berlin, and an apology is due, both to the author and our readers, for keeping them back so long. But emergencies which every editor will readily comprehend have conspired to prevent their early appearance. They will not spoil by keeping, and no judicious host desires to bring out all his dainties at the beginning of a feast. The next issue of THE INDEPENDENT PRACTITIONER will contain at least one of them. It is no disparagement to other observers to say that in the study of the etiology of dental caries, Dr. Miller has made discoveries which entitle him to a first place among dental pathologists.

The present number contains an article by Prof. Frank Abbott, to which we wish to call special attention. He has made an exhaustive study of his theme, is known to the whole dental world as a keen observer and lucid reasoner, and this paper is one of the results of his long-continued researches.

A DANGEROUS REMEDY.

Here is a formula which has been frequently prescribed for toothache:

Spts. Chloroformi,
 " Aeth. Sulph.,
 " Camph.,
 Tr. Opii,
 " Iodinii, - - - aa f. ʒ i.

That is a nice compound to place in the hands of an ignorant person, with no other directions than to wet a pledget of cotton with the mixture and place in the aching tooth. It ought to be efficacious, certainly, if there is any virtue in drugs, and if applied by an intelligent practitioner it might be safe; but to place such a prescription in the hands of careless or uninstructed people is little short of criminal recklessness.

PUBLISHER'S NOTICE.

An unavoidable delay has occurred in the issue of this the April number of *THE INDEPENDENT PRACTITIONER*, the nature of which will be explained in the May number, when further important announcements will be made.

Current News and Opinion.

MARRIED.—In Philadelphia, on Thursday, April 26th, Dr. Safford G. Perry, of New York, to Miss Frances S. Thomas, the sister of Mrs. Dr. Edwin T. Darby, of Philadelphia.

It is seldom that the clinical journalist is called upon to chronicle an event which gives him greater pleasure than does the publication of the above notice. In all the crises of a man's life there is none upon which his welfare and happiness more directly depend than upon the selection of one who is to be irrevocably united to his fortunes, and to whom he must first turn for sympathy in his trials and triumphs. The union so lately celebrated seems fraught with nothing but good, for, aside from the pair whose interests are henceforth one, it brings into yet closer relationship two men, both eminent in their chosen profession, whose intimacy and friendship has been long and close. If the hearty congratulations and earnest good wishes of hundreds of professional and personal friends can avail anything, Dr. Perry's domestic hearthstone will be a haven of rest and joy, and his matrimonial bark will sail in quiet seas, wafted by none but favoring gales.

A GOOD THING WELL BESTOWED.—At the commencement exercises of the University of Louisiana, the degree of Doctor of Medicine was conferred upon Geo. J. Friederichs, D. D. S., of New Orleans. The worthy recipient of this honor is well known to the dental profession, of which he has for many years been a prominent member. He has been a hard-working student, not alone in dental but in general pathology as well, and his utterances in our principal society meetings have ever been listened to with attention and respect. Henceforth he has an additional claim on our consideration because of his membership in the parent profession, and we are sure that his zeal will know no abatement upon this attainment of a worthy ambition.

AMERICAN MEDICAL ASSOCIATION.—SECTION ON DENTAL AND ORAL SURGERY.—The thirty-fourth annual session will be held in Cleveland, Ohio, commencing Tuesday, June 5th, 1883, at 11 A. M., and continuing four days.

The delegates shall receive their appointments from permanently organized State Medical Societies, and such county and district medical societies as are recognized by representation in their respective State societies, and from the Medical Department of the Army and Navy, and the Marine Hospital service of the United States.

All medical men practicing the specialty of Dental Surgery are most cordially invited to procure credentials from their local medical societies and join us at Cleveland. Railroads furnish reduced rates to all members wishing to attend.

A member desiring to read a paper before any section, should forward the paper or its title and length (not to exceed twenty minutes in reading) to the Chairman of the Committee of Arrangements, at least one month before the meeting.

TRUMAN W. BROPHY,

Sec'y Section on Dental and Oral Surgery, Am. Med. Association.

AMERICAN DENTISTS IN EUROPE.—The American Dental Society of Europe will hold its next annual meeting at Cologne, Germany, beginning on Tuesday, August 7th, 1883. Especial efforts are being put forth to make this meeting one of interest and profit. Members of the profession intending to visit Europe the coming summer are most cordially invited to be present.

W. D. MILLER, Secretary, Berlin.

DENTAL SOCIETY OF THE STATE OF NEW YORK.—The fifteenth annual meeting of the Dental Society of the State of New York will be held at Geological Hall, State street, Albany, Wednesday and Thursday, May 9th and 10th, 1883.

Officers:—President, L. S. Straw, Newburgh; Vice-President, Frank French, Rochester; Treasurer, A. H. Brockway, Brooklyn; Secretary, J. Edw. Line, Rochester; Correspondent, W. H. Atkinson, New York.

Censors:—N. W. Kingsley, Chairman, New York; S. D. French, Troy; S. B. Palmer, Syracuse; F. French, Secretary, Rochester; Wm. Jarvie, Jr., Brooklyn; W. H. Colegrove, Johnstown; A. M. Holmes, Morrisville; A. P. Southwick, Buffalo.

Members of the profession who purpose presenting themselves before the Board of Censors for examination for the diploma of this Society and the degree of "M. D. S.," should communicate their intention immediately to Dr. Frank French, Secretary of the Board, at Rochester, and report to him personally the morning of May 8, 1883, at the Delevan House, Albany. The examinations will begin at 10 A. M., and continue throughout the day, or until the list of candidates is exhausted. No examinations will be held during the sessions of the Society.

The "Whitney Memorial Prize" of \$35 in cash is annually awarded to such member of this society as shall, in the opinion of the Committee on Prize Essays, offer the best paper upon some subject relating to dental science.

This prize is open to members of this society only, and by vote of the society the regularly appointed essayists may enter their papers if they choose to do so.

If the writer so elect he may withhold his name until the award is made.

All essays entered must be handed to the above committee at least ten days before the annual meeting.

J. EDW. LINE, Secretary.

NORTHERN OHIO DENTAL ASSOCIATION.—The twenty-fourth annual meeting of this society will be held in the parlors of the Sloan House, Sandusky, on Tuesday and Wednesday, May 8th and 9th, beginning at 10 o'clock A. M. A cordial invitation is extended to the profession, and it is hoped and expected that there will be a large attendance.

GEORGIA STATE DENTAL SOCIETY.—By order of the President, and with the approval of the Executive Board, the annual meeting of this society has been changed from May to the second Monday of August, 1883, at Atlanta, Ga.

MAD RIVER DENTAL SOCIETY.—The annual meeting of this society will be held at the Phillips House, Dayton, Ohio, on Tuesday, May 22, commencing at 10 o'clock A. M. A general invitation is extended to all members of the profession to be present and take part in the meeting.

THE NEW DEPARTURE OF THE ASSOCIATION OF AMERICAN MEDICAL EDITORS.—We have before us the circular issued by the secretary of the association. It is the culmination of his very earnest efforts to put some life and usefulness into the association. The main features of the circular are briefly as follows: The place of the next meeting will be the same as that of the American Medical Association: Cleveland, O. The time will be June 5th and 6th. Arrangements have been made so that the sessions can be held between the afternoon meetings of the sections and the evening entertainments. Dr. N. S. Davis, president of the association, will make an address on Tuesday evening, upon "The Present Status and Tendencies of the Medical Profession and Medical Journalism." On Wednesday evening, Dr. H. O. Marcy will give an address upon "Journalism Devoted to the Protection and Concentration of Medical and Surgical Science in Special Departments." Papers are also expected from Dr. Stone, of St. Paul, and Dr. Oosterlony, of Louisville. The announcement is given thus early that such as are interested in these subjects, whether or not they be editors, may make such arrangements as shall permit them to take part in the discussions. It is also to be hoped that the medical editors will be out in full force. Most of them never attend the meetings of the American Medical Association, and this furnishes all an excellent special inducement to attend and make its acquaintance. We are certain that in no other way can so correct an idea be obtained of the medical profession of the entire United States; of its excellencies and its defects, and suggestions as to the ways by which the one may be cultivated and the other corrected.—*Detroit Lancel.*

Bibliographical.

The Science and Practice of Medicine ; or, the Pathology and Therapeutics of Internal Diseases. ALONZO B. PALMER, M. D., LL.D., Professor of Pathology and Practice of Medicine and of Clinical Medicine in the University of Michigan. New York : G. P. Putnam's Sons, 1882, 2 volumes.

Prof. Palmer's two volumes on the Practice of Medicine have already, vulgarly speaking, "been through the mill," and one or two of the mills had decidedly hard and *very* sharp teeth. An American undertaking it is; but not the first. Other practitioners, some in New York City, some elsewhere, have written books on Practice, in part, at any rate, based upon their own experiences in hospitals and asylums. We agree with the views of a correspondent, whose views are given in a communication elsewhere in THE INDEPENDENT PRACTITIONER. But when he does drive a little too hard against publishers, who, in reality, have done something besides publishing reprints and translations of foreign authors.

What to say about Prof. Palmer's book? First, what is his aim? It seems to us to be to tell Americans just how to treat diseases that he meets with in every-day practice, without dwelling very particularly upon the pathology lesions which, whether recognized or not, lie between the lines of nearly every prescription that evidences a plan of treatment.

Therapeutics can never take precedence of pathology, any more than a varnish can restore the rottenness underneath. A man learns a great deal of therapeutics after he leaves Alma Mater. He does not so often imbibe pathological knowledge. Thus "specifics" are not so much thought of the second and third year after graduation as they were at the lecture, and the opinion of them declines steadily thereafter.

Pathology and pathogenesis are first to be clearly marked in the memory; then are the symptoms full of meaning and the use of drugs full of logic. A prescription "learned and conned by rote" is about on a par with reading prayers from the pulpit from a popular printed collection of them.

What Prof. Palmer has done is to give a fairish statement of symptoms, a meagre pathology and a very comprehensive line of treatment.

His Latin and his English have been criticised by the medical press. No doubt a second edition will correct all the errors in grammar and construction. It does not serve our purpose to put in any of his odd phraseology or faulty prescriptions for the amusement of our readers. Oftentimes a disease, a set of diseases, is not well done. Notably, the spinal cord and the liver are not written up to the times. Polymyelitis we find; *Polio* is the term. We can only hope that the true meaning and etymology were known, and that the unconscious printer was to be blamed.

The classification could be better, and it seems to us that the matter could be more compact and condensed, both in expression and on the printed page. The treatment, however, gives many a hint that will be accepted and acted upon by those whose experience is less than Dr. Palmer's. The style of paper and of type is excellent, the usual work of the Putnams.

Bromide of Ethyl, the most perfect anæsthetic for short, painful surgical operations. By JULIAN J. CHISHOLM, M. D., Professor of Eye and Ear Diseases in the University of Maryland.

This is a reprint from the *Maryland Medical Journal*, and details the experience of the author with the agent in question. His estimate of the virtues may be gathered from the title of the paper. He says: "Its wonderful action is obtained during the first minute of its inhalation, and what I have called its primary anæsthesia." Accordingly he pushes the administration to the utmost, excluding the air as far as possible, and claims to produce perfect anæsthesia in from twenty to sixty seconds, without nausea or succeeding dullness. His directions are as follows: "The best inhaler for the giving of bromide of ethyl is a thick towel folded into the form of a small cone, with a closed apex. Between one of the folds of this towel I place a sheet of paper, which makes the cone nearly air-tight. The base of the cone must be wide enough to inclose both mouth and nose. I instruct the patient how to make long inspiration, and inform him he must do this notwithstanding the fact that he will feel somewhat stifled. The cone must not be removed from the face for an instant until anæsthesia is produced. I have found this anæsthetic sleep to last not more than two or three minutes, often not so long."

This method of administration is very well in giving nitrous oxide, which is very weak in anæsthetic power, but bromide of ethyl appears

to be more potent. Certainly, in our experiments upon some of the lower animals we have produced a narcosis as profound as that of ether, and seemingly as lasting. But the symptoms attending its use were frequently so alarming that we have never dared give it to a human being. Clonic, and even tetanic convulsions, extreme nausea, and subsequent depression, were indications of too profound disturbances for perseverance in its use. It was not, however, administered according to the directions of Dr. Chisholm, but was given slowly and carefully. The method of placing a stop-watch in the hands of an assistant to determine in just how many seconds anæsthesia may be reached and an operation performed does not commend itself to a careful man, who is usually quite content to occupy a little more time in the hope and expectation that additional security may be obtained.

Headaches: Their Nature, Causes and Treatment. WM. H. DAY, M. D. Philadelphia: P. Blakiston & Co. 1883.

The subject of "Headache" interests physician and patient alike. Oftentimes one would rather "strike" a case of measles than treat a case of headache that the patient—usually female—"has had on and off for years."

The whole subject is concisely and completely covered in this work, and is equally readable by the laity and the profession. It is a book to be recommended in all respects *per se*; but we wish the paper were a little better than ordinary newspaper.

Alcoholic Intoxication: From a Medical Standpoint. JOSEPH PARISH, M.D. Philadelphia: P. Blakiston, Son & Co. 1883. \$1.25. An interesting and thoughtful monograph.

Obituary.

WILLIAM HOLME VAN BUREN, M.D., LL.D., NEW YORK.—Professor William H. Van Buren, M.D., LL.D. (Yalen), died in this city on the morning of March 25, 1883, within twelve days of the completion of his sixty-fourth year.

Born April 5, 1819, of a line of medical ancestors, Dr. Van Buren reached a position in the profession of the highest distinction.

His graciousness of manner, his dignified dexterity as an operator, his wide command of language as a lecturer, his elegance of diction

as an author, the magic in the sick-room, will be long and pleasantly remembered by those who came in contact with him.

He entered Yale with the class of '38, but did not graduate; yet the college, in recognition of his literary attainments and distinguished position, decorated him with the honorary degree A.M. in 1866, and later, in 1878, conferred upon him the highest title in her gift, LL.D.

The University of Pennsylvania, in 1840, graduated him in medicine after his return from a tour in the Paris hospitals. He then served in the army until 1845, in which year he came to New York to assist the late Valentine Mott in the work of his clinique in the medical department of the University of New York.

During thirty-eight years he labored in the rich surgical fields furnished by this great metropolis, reaching distinguished honors which accumulated upon him as he advanced in life.

Among these may be mentioned the professorship of anatomy in the University, and of the science and art of surgery as well as of genito-urinary surgery and syphilis in the Bellevue Hospital Medical College. He did creditable work as an active surgeon to the Bellevue, the New York and St. Vincent's Hospitals, and has been consulting surgeon to St. Vincent's, New York, Bellevue, Charity, the State Woman's and the Presbyterian Hospitals. He was for many years active in medical society work, being Vice-President of the New York Academy of Medicine and President of the Pathological Society. He was a corresponding member of the Society of Surgery of Paris.

His first literary efforts were translations of French works, but soon able essays upon matters of personal experience appeared from his pen in the various medical magazines—essays marked by the honesty of the observations reported as well as their graceful elegance of expression. His "Contributions to Practical Surgery" appeared in 1865, his "Lectures on Diseases of the Rectum" in 1870, and again, in much better form, as a second edition in 1882. In 1874 he appeared as joint author with his junior partner in a text-book on "Genito-Urinary Surgery," and finally, his latest and perhaps ablest production on "Inflammation" came out in "Ashhurst's Encyclopædia of Surgery" only a short time before his death.

The credit of being the author of the tunneling of urethral instruments attaches to his name. This improvement is perhaps second to none in modern urethral surgery.

He leaves a wife—a daughter of the late Valentine Mott—and two married daughters to deplore his loss.

His death was due, indirectly, to apoplexy, which occurred in the spring of 1882, directly, to degenerative changes about the injured cerebral focus, changes which set in with the beginning of the present year. He appreciated the approach of death, and wished for it.

DR. W. H. GODDARD.—Died at his home in Louisville, Ky., of chronic asthma, on Monday, March 5th, 1883, Dr. W. H. Goddard, in the seventy-fifth year of his age.

This announcement will fall like a great weight upon the hearts of many members of the dental profession. There are few men in practice who have not commenced their career since Dr. Goddard became a dentist. He had, with keen interest, watched the growth of the profession, and had the supreme satisfaction of living to see the few scattered members who made up the number in 1840, when he first opened an office, increase into a large and influential body of men, devoted to scientific research, with schools and a literature which eminently qualified them for membership in a learned profession.

For fifteen years Dr. Goddard was the faithful treasurer of the American Dental Association, and at its last meeting in Cincinnati he was with great unanimity elected its president; the fitting climax of a long and useful professional life. There are few of those who were present and heard his inaugural remarks, who will not remember the impressive words then spoken, when he reminded the members that in the natural course of events, he could hardly hope to meet his brethren many more times. "Yet," said he, "I assume the gavel in the confidence of success;" a confidence that was not misplaced, for he has succeeded in rounding out a long and useful life with a death, at his post of honor, and he has left to his brethren the legacy of a conscientious and reputable professional life.

VOMITING IN PHTHISIS.—To relieve this symptom, Dr. Woillez painted the pharynx with a solution of bromide of potassium, and found it very useful. A pencil of charpie dipped into a solution of pure bromine in two-thirds of water was passed rapidly into the pharynx before meals, the patient being required to abstain from expectoration after as long as possible. In several cases the vomiting was arrested by the first application, while in others the action, though less immediate, was beneficial.—*Journal de Thérapeutique*.

Extracts.

WHY IS CHLOROFORM SO WELL BORNE IN MIDWIFERY?

It has long been a recognized fact that the administration of chloroform in midwifery is not followed by the deaths which so frequently happen when it is given during surgical operations. No explanation has, so far as I know, yet been given. The explanation, I believe, lies in the condition of the heart and vascular system during pregnancy. The changes undergone by the heart and vascular system during gestation are well known. The heart becomes hypertrophied, the system becomes enlarged by the distention of the existing veins and the development of fresh venules. The quantity of blood is increased. When chloroform produces fatal syncope, it does so by its depressing action of the heart. This is well known. When, however, the heart is strong, stronger than usual, as in the hypertrophied heart of pregnancy, it can more easily withstand the action of chloroform. Is not this the reason that the hypertrophied heart of pregnancy is unaffected by chloroform? I think it is clearly so.—*Fancourt Barnes, M. D., in British Medical Journal.*

A CASE OF TUMOR of the skull and bladder was reported, and the specimens presented, by Mr. Clutton, at a meeting of the Pathological Society of London (*London Lancet*). The patient was first seen in 1877, and had at that time a swelling over and fixed to the left parietal bone, which was soft in the center and had an indurated margin. This was opened and a large opening was found in the skull. He died about six months afterwards from the profuse discharge and hectic. He suffered from severe neuralgia, but there was no paralysis nor any symptoms of trouble in the bladder. The post-mortem disclosed an opening in the skull three inches across, the ulcer in the scalp being four by five inches. The exposed dura mater was thick and rough, and in its center was an opening about the size of a florin, beneath which the brain showed commencing hernia. A tumor as large as an orange occupied the left side of the body of the bladder, both inside and outside, its margin being well defined. Microscopical examination of the tumor of the head showed an alveolar structure, with large cells having distinct nuclei and nucleoli, with interalveolar small round and spiral cells. It was considered to be an alveolar sarcoma. The

bladder tumor was composed of round and oval cells like those of sarcoma. As to which was the primary growth in this case, or whether they were entirely independent of each other, were questions about which there was a difference of opinion.—*Weekly Med. Review.*

DR. BEARD ON HERBERT SPENCER.

The recent death of Dr. George M. Beard will lend additional interest to the little pamphlet by him just published by the Putnams. It is entitled "Herbert Spencer on American Nervousness—A Scientific Coincidence." The seventeen pages are mainly taken up with showing how precisely Mr. Spencer's views on American nervousness, while he was in this country, corresponded to Dr. Beard's own views as previously made known in his volume on that subject published in 1881. Dr. Beard was not so conceited or so unjust as to take for granted that Mr. Spencer had privately adopted his conclusions, but the similarity of the language used by both encouraged Dr. Beard to suspect that this similarity of thoughts and words was merely an interesting coincidence. Anybody who understands the late Dr. Beard's character at all, knows that he was particularly honest, not only in his professional dealings, but in his announcement of his doctrines, beliefs and theories. He was many sided. The facts of his mind were numerous and bright. An unfortunate physical infirmity rendered it impossible that he should be able to be as good a practising physician as he was a writer on nervous disease and psychological disease. His little book now speaks with the solemnity and authority of a voice that has passed beyond the confines of human existence. It is to be hoped that his sudden and early death will not deprive the world of that "deep explanation," which he here confesses he had arrived at, whereby an elucidation is given of such inconsistent phenomena, as the co-existence of a chronic brain exhaustion and the highest and hardest brainwork through a long lifetime. Dr. Beard hints that he has already prepared an answer to this very interesting query. If so, it is to be hoped that it will be found among his posthumous papers. The question itself is entirely new and unheard of to most persons, and it cannot but be believed that so trained, so electric and so ingenious a mind as Dr. Beard's has much that is both startling and satisfactory to say in response.

A NEW IDEA FOR THE SPREAD OF THE KNOWLEDGE OF MEDICAL ETHICS.—The code of medical ethics contains much that relates exclusively to “the duties of patients to their physicians.” It has, doubtless, puzzled many to understand how patients were to be made aware of their duties to their physicians. Clearly the code has never been brought to public notice. All the public know of medical ethics has been derived from physicians and newspapers. As to the desirability of instructing the people respecting their duties in this regard, there can be no doubt. As to the best method for accomplishing it, there is plenty of room for ingenuity. Dr. F. H. Darby, of Morrow, O., has struck upon the idea of using wrapping paper as the means of spreading this knowledge. Thus he has had printed on one side of wrapping paper the duties of patients to physicians, as given by the code. This printing is so arranged that the sheet can be torn or cut into halves, quarters, eighths, or sixteenths, without destroying the reading matter. There are also added items of general interest, and of wit and wisdom, to still farther attract attention. This paper is for the use of physicians and druggists in dispensing their medicines. If properly carried out, we have no doubt but this scheme will be productive of general good. Perhaps it may be the means of stimulating other minds to devise other and better modes for the instruction of people in these and other important matters relating to their relation to the medical profession.

Thus it may be hoped that some of the heresy and skepticism now existing among the people may be removed.—*Detroit Lancet*.

HONEST AND TRUE NEW YORK DOCTORS.—An association for the purpose of upholding the old code of medical ethics, and resisting any modification of this code that does not emanate from the body in which it originated, has been formed, and held its first regular meeting at the hall of the Academy of Medicine on Friday evening, March 23d. Among those interested in the movement are such leading men as Austin Flint, sr., Austin Flint, jr., T. Gaillard Thomas, Alonzo Clark, Willard Parker, Thomas M. Markoe, Lewis A. Sayre, Frank H. Hamilton, Isaac E. Taylor, William T. Lusk, Samuel S. Purple, Abram Du Bois, J. W. S. Gouley, John H. Hinton, Stephen Smith, J. Lewis Smith, Jared Linsey, Nathan Bozeman, Henry D. Noyes, Richard H. Derby, F. D. Weisse, J. Williston Wright, Octavius A. White, John G. Adams, and William J. Morton.—*Boston Medical and Surgical Journal*.

THE MICRO-ORGANISM OF WHOOPING-COUGH.—Dr. Carl Burger (*Berliner Klin. Woch.*) describes an organism which he has found in the sputa of patients with whooping-cough, which are so constant in their appearance in this disease, while never to be seen under other circumstances, that he believes there must be some etiological reason for their presence, particularly since the intensity of the disease depends upon the number of the organisms present. He has not yet reported the results of the culture-experiments with which he is at present occupied.

These organisms are readily detected by simple staining with watery aniline solutions, and may be prepared in the same manner as employed by Koch in the case of the bacillus tuberculosis. Dr. Burger describes them as ovoidal rods, about twice as long as broad, with a slight constriction around their middle; occasionally they are met in chains and groups, and by their difference in size and shape can be readily distinguished from the spores of *Leptothrix buccalis*.—*Medical News*.

TREATMENT OF ULCERS.—Dr. Wilson, in "Notes on the Treatment of Ulcers," remarks that the application of a specially prepared sand to granulating sores has been tried for some time with success, and that it possesses the advantage, since it absorbs the discharge, of seldom requiring removal, so that healing can proceed without interruption. This sand is prepared as follows: It is first heated to a temperature capable of destroying all organic particles. It is then soaked in a solution of one part of bichloride of mercury in 1,000 parts of water. After this the mixture is placed in bottles, and can be used when required. This mode of treating ulcers is not new, the sandy earth of the termite ants having long been used for this purpose by the natives of the West Coast of Africa. This substance was some time since imported by Mr. T. Christy, under the name of "termite earth," for trial in this country, but whether it possesses any antiseptic properties derived from the white ants is not known.—*Scientific American*.

FANGS OF THE RATTLESNAKE.—At the January meeting of the Philadelphia Academy of Natural Sciences, Dr. Leidy exhibited a series of fangs taken from a rattlesnake fifty-two inches in length. The rapidity with which the functional fangs are reproduced was shown by the presence, on each side of the jaw, of five fangs in varying degrees of development, so placed as to replace those which are lost.

STATISTICS OF SYMPHYSIOTOMY.

Dr. Robert P. Harris publishes in the *American Journal of the Medical Sciences* for January, 1883, a careful analysis of the statistics of symphysiotomy, with comparative tables of the early and later cases, showing that the operation has been more frequently performed in Italy in the last seventeen years than in the previous eighty. In the first table, extending up to 1858, out of 70 cases there was a maternal mortality of 70 per cent., and a foetal mortality of 67 per cent. The second table begins with the resuscitation of this operation in Naples, in 1866, and as far as he has been able to learn, there have been 53 operations in that city, saving 43 women and 42 children. From the report of Prof. Morisani, by whom most of these operations were performed, we learn that—

1. All of the fifty operations (in table 2) were performed upon rachitic subjects, whose pelves were generally flattened antero-posteriorly. In four or five instances the pelves were simply dwarfed in dimensions. There was no case of rostrate pelvis, as *Malacosteon* is very rarely met with in Naples.

2. Version was not resorted to except in the transverse positions. The forceps were applied in about one-fourth of the cases.

3. The separation of the pubes amounted to about 2 inches (50 mm.), which was obtained without any effort, and without producing any lesion of the sacro-iliac synchondroses.

4. The immovable dressing secured the firm union of the symphysis pubis in all the cases that recovered.

5. The women had good health after the operation.

6. There were no malformed infants. Nearly all of the children were sent to the Foundling Hospital to be taken care of.

7. *Phlegmasia alba dolens* did not occur in any of the women.

8. There were no pelvic lesions left, as a sequel of the operation, with the exception of one case of iliac phlegmon.

9. Vesico-vaginae fistula occurred in but one case, and this was easily cured by an operation.

THE BACILLUS OF WHOOPING COUGH.—Dr. C. Burger, of Bonn, in the first number of the *Berliner Klinische Wochenschrift* for this year, describes at length the special micro-organisms of pertussis, which he states can be found in any specimen of

whooping-cough sputum. They appear, under the immersion lens VII, ocular O of Seibert-Krafft, as small elongated elliptical bodies of unequal length, the smallest being double as long as broad. Under a very strong power, transverse subdivision can be detected in the longest specimens. They may form chains or groups, but are generally isolated and scattered singly all over the field. They bear a certain resemblance to *Leptothrix buccalis*, the spores of which are often found in whooping-cough sputum; but the latter are larger and stouter, and near them the filiform mature leptothrix is always present. Occasionally, some of the specific bacilli are found to be inside the mucus-cells in the sputum. The bacillus is easily prepared; they can be readily recognized if colored in the usual way by watery solutions of aniline. Fuschin and methyl-violet were employed by Dr. Burger. As in the case of *Bacillus tuberculosis*, this micro-organism is best studied when mounted in the dry way. Dr. Burger concludes that this bacillus is the actual producer of pertussis, because it is not found in any other kind of sputum, because it is so abundantly produced in whooping-cough that its influence cannot be doubted, because its abundance increases in direct proportion with the severity of the disease, and "because the course and symptoms of the whole disease are best explained by the development of this fungus."—*British Medical Journal*.

DR. CLARK BELL, in his inaugural at the January meeting of the Medico-Legal Society, stated, among others, the following, as worthy of being brought before the Legislature: the question of reform in the laws relating to the office of Coroner, and the adoption of a new system of investigation and proceeding in all cases of sudden death, when reasonable cause exists for the belief that the death was by violence, or has resulted from other than natural causes. This question has been before this body for some time, and the Society stands committed in favor of a substantial and radical change in the existing law, and the appointment of medical men skilled in the investigation of such cases to take charge of the medical questions involved, and of having the legal questions determined by a Court of competent power and jurisdiction. The Medical Society of the State of New York, on the invitation of your Committee, at the session of 1881, memorialized the Legislature in favor of reformatory legislation of this character. A competent committee of this Society has this subject now

under consideration, and has made a formal report. I recommend that the subject be again brought to the attention of the Legislature, and that the State Medical Society be again asked to co-operate with us in asking legislation favoring the necessary change. I also recommend that the Society instruct the Committee on Coroners to frame and report a bill to be submitted to the present Legislature, in accordance with the previous action of the Society and its Executive Committee.

Popular Science Department.

THE MEDICAL USES OF MUSIC.

The spells of music have always been themes for speculation. The earliest inquiries concerned this loan of Apollo to man. Melody was no sooner revered than its birth was deciphered, and among the primitive calculations was the mission of song. Its winsome appeal to passion ; its faculty of lulling heart-aches, scattering the vapors of a burdened spleen, or smoothing the rugged pathway of grievous duty ; its aid to genius ; its friendship to humor ; its inspiration to holy offerings, these varied values of melody touched the harp-strings of the early student and made him sing of music as of some far off welking descended, the offspring of the rustling river-reeds, or the whispers from well-disposed Olympus.

Its startling energy in animating, and curious ascendancy over, morbid experiences suggested its utility long ago as a cure for pain, equally as a method of worship or an overture for assistance.

Pythagoras, who referred the origin of melody to the gambols of the spheres, prescribed sonnets to those laboring under aberration of mind whether sensible or feigned. His trials of it were confined to those who were fretted by delusions. Sacred writ instances the power of sweet strains to break vials of wrath, as in the case of Saul incensed against David, who exhibited a species of mania, or madness fed by jealousy, which condition is, according to the present reading of the mind diseased, a variety of true derangement. It is affirmed of the wise Thales that under his auspices an imminent plague was banished from Sparta by the skillful exercise of musical instruments. The probability of such an antidotal element in minstrelsy lacks warrant in the light of the current views on the genesis of disease,

but the notice of the story sustains the statement that the ancients expected a virtue in music to operate against the disorders of nature. Capella who flourished in the fifth century and wrote a quaint compound of allegory and the liberal sciences, relates the prescription of music to cure fevers and tells of its positive success. Hearing is reported by Asclepiades to have been restored by stimulating the organism with frequent blowing of a trumpet. The same practice of playing the lyre and singing lays before mad patients (apparently first suggested by Pythagoras) was continued by Xenocrates, who figured among the Greeks in 396 B. C. The confidence in the serviceableness of music in disease does not appear to have waned as successive experiments measured its utility—the indications for the remedy rather increased, for in the writings of the popular Greek schoolmaster, Theophrastus, cases are detailed of the cure, by music, of rabies and the shock or depression induced by the bites of vipers or venomous serpents. Not all these reports are to be received as the sportive wiles of some deft juggler—they are far from the impossible. The terror of wounds inflicted by rabid animals and that black despair so proverbial a symptom among those thus bitten are remediless save by exorcising or some sort of machination of electro-biology that shall charm away the bug-bear. Reason's discourses to a hydrophobic patient are not sovereign, and the use of sounds in silvery cadence may be a remedy yet to be appraised as prolific of comfort as the amulet, or the royal touch.

In the second century Aulus Gellius, a Roman grammarian, and author of the "*Attic Nights*," described a case of sciatica cured by harmonics. In the latter medical literature the employment of incantations to ease pain and pacify the furies is often noted, and the measure is recommended with emphasis not repulsive. In the time of Luther the people were profoundly impressed with the special antagonism of mellow airs to the wiles of maleficent beings. This zealous propagandist of a new confession defined music as a "bitter enemy of Satan." The persuasion that mellifluous sonatas are not congenial to the devil, and that insanity in all its varieties, for ages expounded as the curse of an angry god, can be appeased by the richest euphony, is not discredited, nor lightly esteemed among those who determine law to disease. The use of music now preferred in insane asylums is an evidence that we are possessed of a clearer ken of the maniac's disturbance. This is an era in which the sentinels of sci-

ence are gaining ground surely—when heathen frauds are being buried at wisdom's gate, and ere long it may be affirmed of the pioneers in the healing of the mind diseased, that in the "golden tongue" they have found a sway over grim despair.

The same data which made sensible the service of modulations with the insane will explain the propriety of doctoring any of the other disturbances of the nervous system, particularly the functional, with minstrel performances. The notion that mirth is bracing and that the hornpipe mocks a funeral, is no raw increment to reason's capital. The ancients had a saw that the three best physicians were "*mens laeta, requies, dieta moderata*." Macbeth when he "throws physic to the dogs," forgot to ask for pipes and whistles. The charms of music are as far-famed as Eden's serpent. In sickness its persuasiveness seems irrepressible and full many a time when decay is long spun out and death defers his call to fill full the cup of gnawing weariness, harmony comes as pain's seducer. To those suffering ideal ills, or who can call up any ache at leisure, the dyspeptic, the man with clogged liver or big spleen, the brigade of victims not of youthful indiscretions, but inmates of painted sepulchres and patrons of white-robed medicasters, to all these pilgrims of Despond some Terpsichorean strains, the soul-stirring symphonies of a Mozart, the rollicking choruses of a darkey troupe, the thrilling anthem, the melting ditty will dispense the nepenthe that no drug depot ever inventoried. The story told of Farinelli curing Philip of Spain of suicidal intentions induced by ill-health, is a valuable confirmation of the possibility of controlling nervous depression by sonatas. Philip had passed into a state of profound despondency, continuing thus for days, secluded, not even willing to have an attendant to shave him. The Queen, confident that music would unyoke the bond of cold melancholy, ordered a concert to be given in a room near the King's chamber. The ravishing warbles of Farinelli at once overcame the King, who ordered the singer into his audience. Farinelli continued the soft impeachment until the King consented to resume his duties, was shaved and appeared in public. To make the cure genuine the Queen required Farinelli to sing daily for some time. No return of the "blues" to Philip, King of Spain, was ever afterward noticed. The affection, *mal de pays* or nostalgia, is said to be greatly amenable to minstrel ditties—the banjo may yet be found a specific for homesickness. With the Romans female musicians or *psaltriæ* were hired

to play before the love-lorn ; the Swiss were fired from withering despair to courage dreadless by the Rans des Vaches ; the pibroch made the Scot wax hot to die a hero. It is not the courage of wild fiction to conclude that the South Germans rarely resort to suicide because of music's grip on madness, and more than one to-day whose griefs of digestion or cultivated cough have made a rover after Siloam's waters, would forget all twinges if once moved by the electric trills of a Jenny Lind, a Gottschalk, or a Paganini. The gospel of sweet rhyme has not yet been proclaimed of all its affluence. The rewards of song will not be ripe, nor can its coronation be confirmed until the energy hid away in music's sanctuary is brought out, and made to combat every pain that does violence to temperate reason or nice content.—*By George L. Beardsley, of Birmingham, Conn., in New England Medical Monthly.*

AIR GERMS AT DIFFERENT SEASONS.—The observations conducted at the Observatory of Montsouris show that there are on the average eighty bacteria in a cubic metre of air. The highest number was observed in the fall, the lowest in the winter. There were found fifty bacteria in December and January, only thirty-three in February, one hundred and five in May, fifty in June, and one hundred and seventy in October. The diagrams of daily observations show that the number of spores of these algæ increases with the temperature. Inversely to what takes place in the case of the molds, the number of the schizophytes, small in rainy weather, rises when all the moisture has disappeared from the surface of the soil. The counteraction of moisture is stronger than the direct action of temperature ; and this fact accounts for the rarity of the bacteria after the great rains of February, April and June. Still a long period of dry weather does not appear to be favorable to the development of the plants. The number rises at first during the hot season, but diminishes under the influence of a progressive desiccation toward the second or third week.

The diminution in hygrometric conditions manifested in September and October explains the recrudescence of the bacteria during these months. Some micrographers have suggested that the germs may be transported by the vapor of water ; but M. Miquel's experiments invalidate this hypothesis, and indicate that the evaporation of water from the surface of the ground never carries any schizophytes with it. On the other hand, numerous tests have shown that dry dusts, es-

pecially those of hospitals, proceeding from substances in a state of putrefaction, sanious pus, and the dejections of the sick, are charged with microbes. Great agglomerations of men furnish the most of them. According to the measurements made in the Rue de Rivoli and Montsouris, the air in the interior of Paris is nine or ten times richer in bacteria than that in the neighborhood of the fortifications.—M. LOUIS OLIVIER, in *Popular Science Monthly* for May.

“THE MISSING LINK.”—Whether the remarkable specimen of humanity now exhibited at the Westminster Aquarium is a “missing link” or not, nobody will deny that it is of the greatest interest. It is a child seven years of age, capable of speech, whose body is covered with short, dense, soft hair, with prehensile feet, hands capable of being bent back upon the wrist, pouched cheeks, used to store food as in the monkeys, and jaws slightly prognathic. It will not do nowadays to settle such an anomaly by calling it a *lusus naturee*, for most naturalists are agreed that “sports” and “monstrosities” are often only “reversions to ancestral conditions.” The father of the child was covered with hair in a similar manner. The family was discovered in the Lao country, by Mr. Carl Bock, the well-known traveler and anthropologist. Miss Bird, in her charming book on Japan, describes the short, hairy aboriginal race of that country known as Ainos; and more recently Mr. A. H. Keene has described the Aino ethnology more fully and scientifically. In the extreme east of Asia we have these dwarf hairy Ainos, fast becoming extinct; and now a Siamese hairy family turns up with decidedly Simian characteristics. In Burmah hairy people have been occasionally known. It will be remembered that, many years ago, Mr. Everett was sent to Borneo to explore the caves for possible early remains of man, as it has always been imagined that it is to the tropical and sub-tropical parts of the extreme East we should look for “missing links” between humanity and the lower animals.—*Science Gossip*.

A photograph of this famous “missing link,” now lying before us (and for which we are indebted to Dr. J. S. Crapper of Hanley, England), shows it to be unmistakably human, with normal hands and feet, regular features of the African type, and jaws not at all prognathic. The only observable abnormality is a thin coat of hair which covers the entire body. The English people are evidently being Barnumized.—EDITOR.

WHERE THE BACKBONED ANIMALS BEGIN.—There is much uncertainty as to how the backboneed or vertebrate animals began ; but the best clew we have to the mystery is found in a little, half-transparent creature, about two inches long, which is still to be found living upon the English shores and the Southern Atlantic coast of the United States. This small, insignificant animal is called the "Lancelet," because it is shaped something like the head of a lance ; and it is in many ways so imperfect that naturalists believe it to be a degraded form, like the acorn-barnacle—that is to say, that it has probably lost some of the parts which its ancestors once possessed. But, in any case, it is the most simple backboneed animal we have, and shows us how the first feeble forms may have lived. Truly, it is only by courtesy that we can call him a backboneed animal, for all he has is a cord of gristle, pointed at both ends, which stretches all along the middle of his body above his long, narrow stomach ; while above this, again, is another cord containing his nerve-telegraph.

There are large fishes, too, which have this cartilaginous backbone. The young shark has nothing but a rod of gristle or cartilage, and, though he is one of the strongest of sea-animals, *he retains this gristly state of his skeleton throughout his life* ; however much he may strengthen it by hard matter, it never becomes true bone.

The first feeble ancestors of the shark and the sturgeon appear at a time when the crustaceans were the most powerful animals in the world, and the huge, lobster-like *Pterygotus* was the monarch of the seas. The plated-scaled fish which existed at the same time were clumsy creatures, for their skeletons were probably feeble and their armor-like shields were heavy. So, as history went on, they gradually gave way, becoming smaller and rarer, while the more active little shark-like animals gradually grew strong and powerful, and from them are descended the giant sharks of to-day.

The powerful gristly-boned fishes are much excelled in agility by the herring, the salmon, and their other bony companions, which move with much less effort in the water, and so have naturally made their way into all parts of the rivers and seas. But where have they come from ? We know very little of their early history, but what little we do know leads us to think that long ago they branched off from the enameled-scaled fish, and struck out a path of their own, to make the most of the watery world.—ARABELLA B. BUCKLEY, in *Popular Science Monthly for April*.

DEFECTIVE CALCULATIONS.—Laying aside these generalities, let us consider an example of the way in which we can weigh and measure, submit the results to calculation, and draw from them conclusions which are formally quite legitimate, and still be all the time on the wrong track; then examine how we may be set upon the right road, and lead to a new conclusion more plausible and more in harmony with the rest of our knowledge.

It has been discovered that the flea can leap two hundred times its own length. Our admiration at this is changed to astonishment when it is demonstrated by calculation that, if nature had endowed the horse with a degree of strength proportioned to his weight he would have been able to clear the Rocky Mountains at a bound, and that with a like effort a whale would be able to leap to a height of two hundred leagues. What can be more unassailable than these conclusions, founded on weight, measure, and calculation?

It is true that if, instead of comparing the weight of the horse and the flea, we had compared their heights, we should have found that the horse's leap would not measure more than three hundred metres. Why is preference given to the weight? Because it is its whole body, with its three dimensions and its density, that the flea hurls to two hundred times its height, and it is the same feat of strength that we demand in vain of the horse. Calculations have also been made to show that if a man could move with a speed proportioned to that of certain insects, he would be able to travel more than ten leagues in a minute, or sixty times as fast as a railroad train.

The Amazon ants, going to battle, travel from two to two and a half metres a minute. The Amazons of antiquity, to be even with them, if we judge by the relative heights, should have traveled eight leagues an hour. We have, however, in this case, to compare the forces with which given masses move themselves, and take account of weights or volumes. If we proceed by this rule we shall obtain formidable numbers that stagger the boldest imagination. The warlike inhabitants of the banks of the Thermodon would have to get over fifty thousand leagues in an hour. Yet who can deny the truth of the observations, the rigor of the measurements, or the justice of the reasoning?—*From "Dwarfs and Giants," by M. DELBŒUF, in Pop. Science Monthly for April.*

FALSE PERCEPTIONS.—The simplest forms of insanity are those which consist merely of false perceptions, and they are not of such a charac-

ter as to lessen the responsibility of the individual. There are two forms of false perceptions—illusions and hallucinations. Uncomplicated illusions are rare ; still there is no doubt that there are illusions not the results of disease in the organs of sense or of circumstances unfavorable to exact perception, but which are due to a morbid condition of the perceptual ganglia, and the unreal nature of which is clearly recognized by the individual.

Illusions of *sight* often relate merely to the size of the objects. Thus, a young lady who had overtasked herself at school saw everything of enormous size at which she looked. The head of a person seemed to be several feet in diameter, and little children looked like giants. So far as her own person was concerned there were no illusions. Her own hands appeared of the natural size, but those of other people seemed to be of enormous proportions. Sauvages refers to a case in which a young woman, suffering from epilepsy, had the illusion of seeing objects greatly magnified. A fly seemed to her to be as large as a chicken. In the case which came under my observation, the unreal character of the perception was fully recognized, and hence the intellect was not involved.

Morbid illusions of *hearing*, unaccompanied by other evidences of mental derangement, are not very common. One case only has come under my observation. It was that of a gentleman to whom the ticking of a clock was resolved into articulate words. Generally the expressions were in the form of commands. For instance, if at dinner, they would be, "Eat your soup!" "Drink no wine!" and so on. One day he made the discovery that, if he closed the right ear firmly, the illusion disappeared ; but, if the left ear were closed, the words were still distinctly heard. It was hence clear that the center for hearing on the right side was the one affected, and that that on the left side was normal. For a long time this gentleman resisted accepting any of these illusions as facts, but after a time he began to be influenced by them to the extent of regarding them as guides. Eventually he put clocks in every room in his house, and professed to be governed altogether by the directions they gave him.—DR. WILLIAM A. HAMMOND, in *Popular Science Monthly for April*.

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ABSCESSSES OF THE ANO-PERINEAL REGION.

BY PHILIP S. WALES, SURGEON GENERAL U. S. NAVY.

CLASSIFICATION.

In the classification of abscesses occurring in the neighborhood of the anus, either the clinical or the anatomical scheme may be followed, though the former is usually adopted by systematic writers. Gosselin divides anal abscesses into four classes, according to their symptoms and course ; while Chassaignac describes no less than seven varieties : three superficial—the tuberosse, the phlegmonous, and the circumscribed phlebitic ; and four deep—that occurring in the connective tissue of the ischio-rectal and the superior pelvi-rectal spaces, that connected with lesions of the rectum, that associated with diseases of the urinary organs, and the osteopathic. An anatomical classification would group abscesses according to their seat, whether in the skin and subjacent cellular tissue, in the glandular appendages, in the connective tissues of the ischio-rectal and superior pelvi-rectal spaces, in the tissues of the rectal walls, or in the tissues of dilated veins. The division which will be selected for convenience of description, is .

that which groups them in two great clinical classes; the superficial and the deep.

SUPERFICIAL ABSCESES.

A *common form* of abscess occurring about the anal aperture is that which is located in the secretory appendages of the skin—the sudoriferous and sebaceous glands—and which is analogous in nature to the tarsal and vulvar phlegmons arising in the corresponding appendages of the skin of those regions. In certain cases it shows a persistent tendency to recurrence; male subjects are more prone to it than female, and persons in apparently robust health than the feeble and sickly; it is rarely encountered in infancy or old age.

Symptoms.—The disease begins with tenderness and pain in the perineal region, which is greatly increased in defecation and in sitting. At some point near the anus a blush of redness with a hardness is observed, which later, forms a distinct circumscribed swelling about the size of a filbert. This stage endures four or five days, when softening begins with the formation of pus, which is finally discharged with marked alleviation of the symptoms. The pus is small in quantity, and almost always fetid; it becomes thin and serous, and continues to drip from the orifice a few days. In the meantime the hardness of the part disperses, and the pus cavity contracts; then one of two things happens; either the orifice definitely closes by cicatrization, or a sinus is left which continues to secrete indefinitely, forming a fistula.

Etiology.—The disease arises from various sources of irritation; the contact of perspiration chemically altered by the heat of the locality, assisted by the mechanical effects of friction between the opposing surfaces of the gluteal muscles; the rubbing of the parts by the seams of badly made or ill fitting garments; neglect of proper attention to habits of cleanliness; injuries from blows, falls, hard riding, etc.; the passage of masses of hardened feces bruising the sphincter; or the irritating effects of acrid discharges from the rectum or the vagina.

Treatment.—The treatment best adapted to this form of abscess is early incision. I am in the habit of doing this as soon as the

part becomes hard and painful. The incision discharges the tissues and offers the only hope of aborting the inflammation; an additional merit is the fact that many hours of suffering are eliminated by relieving the tension of the tissues. If later incision should be deemed advisable, the best course to pursue is to make local applications of flannel or sponge, wrung out of hot water and dashed with tincture of opium or other sedative. There are those who prefer poultices, made of bread crumbs, flax-seed meal, or scraped Irish potato.

Still more frequent than the preceding form is the *phlegmonous abscess*, which has its origin in the subcutaneous connective tissue. It may occupy any position in the perineum, though usually it is found from one to three centimeters from the anus, on one or the other side—rarely in front or behind—and it is more diffused than the former. Seemingly healthy persons are often the victims of the disease, yet it does not spare those whose health has been impaired by other maladies. The middle period of life furnishes the greatest number of examples, though one case, a child three years of age, came under my observation. Women are less liable to it than men.

Symptoms.—It begins with pain and swelling of the part, and more or less induration and œdema of the surface, which is smooth, red and shining, or of a dusky or purplish hue. The pain is aggravated by pressure with the fingers, or in sitting, as well as by the concussion produced by sneezing and coughing; defecation is always painful, and occasionally exquisitely so. There is slight constitutional disturbance, the patient feels ill and feverish, has anorexia, and is disinclined to move about. After five or six days the induration decreases, and fluctuation may be detected at some one point, where, finally, the skin breaks and a quantity of pus escapes with marked amelioration of the sufferings. The purulent matter continues to flow for some days—a week or more—and as the process of absorption progresses the infiltrated tissues are relieved of their burthen and assume their normal softness and elasticity, by which time the aperture is definitely closed. This favorable termination is, unfortunately, not always reached;

in certain cases, in consequence of the peculiarity in the local condition and function of the part, or from some indefinable constitutional cause, the process of repair stops short, leaving a canal or sinus, walled about by indurated tissue and secreting a serous fluid for an indefinite time.

Etiology.—The exciting causes of phlegmonous abscess are traumatic influences acting from without, or from within ; among the former are included injuries from blows and falls, and surgical operation for hemorrhoids, fissure, and fistula. The interior causes spring from the lodgment in some point of the rectal walls of foreign bodies that have been swallowed, where perforation into the circumjacent connective tissue finally occurs. The abscess is sometimes found linked with other diseases, either of a constitutional or local character ; thus, it may complicate the convalescence from the various forms of low fever, or tuberculosis ; or it may be coupled with affections of the neighboring organs, as with gonorrheal inflammation of the vesiculæ seminales, as Gosselin has asserted, and which he regards as furnishing an explanation of the frequency of perineal abscess in the male.

Treatment.—The practice I have followed in phlegmonous abscess, is to incise the indurated part at the more prominent point, or at that point which would seem to be the one where the pus would most likely point, and then to apply hot fomentations. Even when no pus is discharged by the incision the patient experiences the most signal relief to his sufferings by the bleeding, and consequent removal of tension of the part. I have certainly seen the extension of the inflammation checked, if not aborted by this simple operation. The incision need not be ordinarily more than a centimeter in length, and two or three deep, and the hot fomentations may be continued to relieve pain and to facilitate the dispersion of the induration. It has been recommended that efforts should be made to abort the inflammation by the application of ice, but I can not recall successful examples of this mode of treatment, within the sphere of my observation.

Another Form of abscess is that originating in a segment of an enlarged hemorrhoidal vein, which has been cut off from the

venous circuit by inflammatory changes in its walls. Under these circumstances the obstructed vein is usually converted into a small, solid, indolent tumor. It sometimes happens, however, that the irritation is sustained by the persistence of various local causes, as the contact of acrid secretions, or the bruising caused by the contact of hardened feces, and suppuration is induced. The vein is then converted into an elastic, painful, smooth, and rounded tumor, which rarely attains a larger size than a small marble. It may be located at the margin of the anus, or within the sphincter, and occasions much distress and pain during defecation. The treatment required is timely incision, and the local use of hot water holding anodyne remedies in solution.

DEEP ABSCESES.

These abscesses differ from the preceding class in that they are formed in the deeper structures of the perineum, and are, therefore, of a much more serious character. Their habitat is the celluloadipose tissue of the great space at the outlet of the pelvis, which is bounded above by the under surface of the peritoneum, as it is reflected from the pelvic wall to the rectum and bladder; internally, by the rectum; externally, by the ischium and obturator internus muscle; posteriorly, by the sacrum; and below by the skin and subjacent connective tissue. This region is divided in two by the levator ani muscle; the upper part, Richet has designated as the superior pelvi-rectal space, while the lower part is that which has long been known as the ischio-rectal fossa. Although anatomically the locality of the abscess is different, as regards the levator muscle, yet its course is the same, except that the suppurative action at the higher point is nearer the peritoneum, and, therefore, liable to spread more widely in the connective tissue to contiguous parts, or even invade the peritoneal cavity; and, the purulent matter is longer in reaching the surface, through the musculo-membranous septum formed by the levator. For these reasons it is more dangerous.

The disease has long been known to surgeons under the various titles of phlegmonous, stercoral, gangrenous, and ischio-rectal abscess. Chassaignac divides deep abscesses in four groups, ac-

cording to their etiological origin : those originating directly in the cellulo-adipose tissue of the ischio-rectal fossa ; those which recognize rectitis as a cause from whatever source this may spring—traumatic, ulcerous, phlebitic, or parenchymatous ; those resulting from some lesion of the genito-urinary organs ; and lastly, those that are the direct result of disease of the bony walls of the pelvic cavity.

The anatomical characters of deep abscesses vary in different cases. The collection of purulent matter may occupy a single cavity in the ischio-rectal fossa, and communicate with the exterior either through the rectum, or at the perineum. In some cases, on the other hand, there is a second cavity, formed beneath the mucous tunic, which is dissected up to a greater or less extent, and this cavity is connected with that in the fossa by a narrow aperture in the muscular wall of the bowel, thus forming together an hour-glass shaped abscess—the *abcès en bissac* of the French writers. A similar conformation is also observed when the pus forms in the superior pelvi-rectal space, and makes its way through the levator ani muscle by a narrow aperture into the ischio-rectal fossa. Again, an abscess may occupy each ischio-rectal fossa, and they may communicate by a channel located near the tip of the coccyx and beneath the sphincter ani. From the peculiarities of structure and function of the perineum—the constant mobility of its muscular constituents during the act of defecation and respiration, and the changing volume of the neighboring organs from repletion or emptiness—a state of continual unrest results, which influences the course of pathological processes occurring in this region, and hence the difference in the course of abscess here as compared with that of other parts of the body. Even when the purulent matter has been freely evacuated the walls of the cavity do not fall in contact, but remain separated for the reasons above stated, and great delay necessarily ensues in the completion of the reparative process. Further difficulties are encountered in the drainage of pus through the narrow and devious channels that run to the exterior, and also

in the hindrance to its flow presented by the narrow orifices in the muscular layers through which these channels course.

Etiology.—Traumatic influences hold the first rank in the etiology of deep perineal abscesses. They may be exercised from without or from within. The external causes are falls and blows upon the perineum; the wounds inflicted by pointed instruments as sticks, pronged tools, etc. I saw a case of abscess in a boy, which resulted from falling upon the prongs of a hay-fork. It sometimes happens that wounds inflicted in the performance of surgical operations lead to the same result, as in the removal of hemorrhoidal tumors by ligature or knife; it may occur from the rough introduction of the clyster pipe, causing a rupture of the mucous membrane, thereby opening the connective tissue spaces to the irritating fluid employed; lastly, may be mentioned the wounds inflicted by the forcible introduction into the anus of foreign bodies, either accidentally or designedly. The internal sources of traumatism include the lodgment in the rectum of foreign bodies that have been swallowed, and which subsequently perforate it, and lead to extravasation of fecal matter into the connective tissue; or hardened feces or enteroliths. The passage of the foetal head has in some cases bruised the rectum, and excited suppuration in the ischio-rectal fossa. Inflammation of the sub-mucous veins may lead to abscess which dissects the inner from the muscular coat, and finally invades the peri-proctal tissues, or bursts into the rectum and thus opens up the way for fecal extravasation. Strictures which obstruct the passage of fecal matter often give rise to extensive dilatation of the gut and subsequent ulceration and extravasation of the intestinal contents. Disease of the adjoining organs may be the starting point of the suppuration, as occurs sometimes in inflammation of the prostate, bladder and urethra. A case came under my notice of a man of intemperate habits, one who had long suffered from gleet, and was seized with prostatitis, after a debauch in which he was exposed to cold, which ran on to the formation of an abscess. The matter made its way into the perineum, and at the same time broke into the urethra, but there was no in-

filtration of urine in this case, and the man made a safe and speedy recovery. Rupture of the urethra, and extravasation of urine from stricture furnishes some of the most aggravated cases. An example of this sort came under my care during the late war. A metal sound intended to dilate an impassable stricture was thrust out at the perineum near the anus, and caused extravasation of urine and abscess. Necrosis of the bony walls of the pelvis is the source of the disease in rare cases. Exposure to cold, or sitting on the damp ground, furnish a small contingent. There are other cases in which the most careful scrutiny fails to discover any cause to which the disease might be attributed.

Symptoms.—In ischio-rectal abscess the initial phenomena are slight; there is a sense of weight or dull pain in the ano-perineal region, the surface after a time becomes red, hot and œdematous, the parts are tender under manipulation; distress is felt in the sitting posture, and the patient may be a little feverish. Although rigors and an increase of fever may indicate the formation of pus, yet the closest examination often fails in determining any point of softness or fluctuation in the perineum; the parts are everywhere hard and resisting. The suffering, however, becomes by degrees more intense, and continues so until the pus makes an exit at some point. This may occur in the rectum, when the event will be indicated by the bursting of the abscess at stool, and the escape of matter from the anus; in rare cases it takes an outward course, and escapes at the sciatic foramen upon the buttocks, or, as is most often the case, downwards into the perineum or upon the thigh, as in the following example:

A man, æt 47, came under my care with this history: "In Sept., 1860, an abscess occurred near the left tuberosity of the ischium, extending towards the perineum, a sinus extending upon the posterior part of the thigh, and one upon its inner side. He complained of pain about the left hip, especially in walking. There was also a persistent cough." In December I saw him. I found that the sinuses of the buttocks and thigh were connected with a perineal abscess, into which I made an incision and estab-

lished free drainage ; the cavity contracted slowly, and the following February the patient had regained his health.

In other instances, it bursts through the levator ani, and gaining admission into the tissue of the superior pelvi-rectal space it follows this muscle along to the groin, where the pus points, or it may pass beneath Poupart's ligament and reach a lower opening ; in exceptional cases, the pus may break into the peritoneum. Should the pus invade the interval between the bladder and rectum, the vesical functions will be more or less embarrassed, and retention of urine, or other trouble may follow. When the abscess starts in the peri-proctal tissues, the finger introduced in the rectum will, in the early stage, indicate its position by the induration of the rectal walls, or later, by fluctuation and the protrusion of the tumor into the lumen of the gut. It sometimes happens that this induration presents itself and persists without being followed by suppurative action, as was the case in a patient of mine, a lady who had been run down in health by certain physical causes and mental distress. The symptoms of perineal abscess began to show themselves, and I detected an induration in the periproctal tissue ; hot water injections were employed with assiduity. No pus formed, but the hardness persisted for a long time with moderate distress in defecation. Under tonic treatment and change of air the patient fully recovered. In exceedingly rare cases, the symptoms of ileus are said to have been observed, as recorded by Boens.

In cases that are, fortunately, rare, the violence of the inflammation induces gangrene of the perineal structures and even of the rectum itself. This result is indicated by the skin assuming a deep red or purplish color, the cuticle is elevated into vesicles containing bloody serum, and finally soft, yellow or dark sloughs of larger or smaller dimensions are thrown off, leaving ragged chasms in the perineum, discharging offensive sanies. The breaches in the part sometimes occupy the whole of one ischio-rectal fossa, and form a sort of diverticulum to the rectum, in which fecal matter may collect, and still further complicate the case.

The following case, taken from my note book, is one of six of a similar character, which illustrates these evil results, and at

the same time, shows how speedily amendment occurs after careful evacuation and drainage at a late period in the case. A sailor, aged 45, came under my care in March, 1859. He had had an abscess of the right ischio-rectal fossa. The parts had been much tumefied and exceedingly painful. There were three small orifices observed, discharging thin, fetid, and bloody pus. The case had been persistently treated with poultices, with the result that the cellulo-adipose tissue finally sloughed *en masse*, leaving a large, deep, cavernous excavation, at the bottom of which sinuses ran upwards in several directions; the probe could be passed up the side of the rectum more than three inches and the gut itself was dissected from its connections. With the finger and handle of the knife I enlarged the wound, and succeeded in opening a pocket high up, which discharged a quantity of pus of exceedingly fetid odor, with immediate relief to the agonies which the patient was suffering. Considerable hemorrhage followed, but was soon checked by packing the wound with lint. This dressing was removed next day, and the cavity lightly filled with charpie soaked in a solution of chlorinated soda, so that the discharge had free issue. This line of treatment was continued until the cavity filled up, and in April the parts were completely healed and the man resumed his duties.

Abscess of the *superior pelvi-rectal space* causes a sense of weight and fulness in the perineum, which finally becomes very painful while the pus is making its way to the surface. If this happens to occur at the perineum, the parts present the indurated appearances described in the former case; if at the inner surface of the rectum, there will be a discharge of purulent matter from the anus, especially during defecation. When the position of the inner orifice is located high, the pus will be deposited upon the fecal discharge, while on the contrary if low, the matter will be extruded first, and thus occupy a position beneath the fecal discharge. The finger introduced into the rectum will detect the indurated tissue, and the exercise of pressure will cause the matter to issue from an external orifice in considerable quantity, as long as there is any in the pocket above the levator ani. When there

is a perineal orifice, the probe penetrates deeply, if the sinuosities of the fistulous conduit can be surmounted by that instrument, and the usually thick stratum of tissue intervening between it and the rectal wall can be felt by the finger.

Prognosis.—Deep perineal abscess is always serious, and often dangerous, especially that rare form which depends upon necrotic conditions of the pelvic bones and of the vertebræ. When abandoned to itself, the abscess may become the focus of septic infection, phlebitis, or embolic abscesses of the liver. The constant purulent drain exhausts the vital powers, and may lead to various secondary complications, as amyloid degeneration, or tuberculosis, not to mention the lesser evils of permanent fistula, incontinence of feces from the destruction of the integrity of the sphincters, stricture and other secondary effects of contracting cicatricial tissue upon the vagina and urethra. The parts remain long tender and susceptible to slight irritating causes.

Treatment.—Little if any difference of opinion is now entertained as to the proper mode of treatment of deep perineal abscess. There may exist some divergence in practice as to the details, regarding the length, depth and form of the incision, yet it is universally admitted that the early use of the knife is indispensable. It is rarely possible to abort the disease when it has once begun, by the resolvent measures usually recommended for this purpose. Their employment simply consumes valuable time in which the knife alone can accomplish the arrest of the destructive ravages of diffuse inflammation of the connective tissue of the pelvis, and the denudation of its organs. Anatomical considerations explain these results of delayed incision; the perineal fascia, closing in the outlet of the pelvis with a resisting floor, oppose the escape of matter situated above it, and thus turn its course into the more yielding connective tissue spaces.

Perfect evacuation of pus and subsequent thorough drainage are the indications to be fulfilled, and all surgical procedures should be directed to secure these objects, and with the least damage to the muscular structure of the anus and rectum. In those cases which fall under the notice of the surgeon in their in-

ciency, a single antero-posterior linear incision of sufficient length and depth will suffice ; but if the pus has made its way towards the thigh, or buttock, it may be necessary to extend the incision laterally by a second incision at right angles to the first. It should then be determined whether any adjacent pockets or sinuses containing matter are present, and if so they should be made to communicate freely with the wound by the use of the knife or finger. The next step is to introduce carbolised rubber tubes into the deepest recesses of the wound, to fill the space around the tubes with antiseptic cotton, and to retain the whole by an appropriate bandage. As the pus drains away the cavity of the abscess contracts ; even though the rectum may have been dissected from its connections, the breach of continuity of tissue may be repaired without fistulous tracks being left. The same method of treatment should be followed, when the abscess has already broken through the rectal walls and established fistulous communications, for these may spontaneously close as the healing of the abscess progresses ; should this result not occur when the reparation of the parts have otherwise been completed, recourse may then be had to the ordinary operation for fistula. It is not necessary to follow all the devious windings leading from the abscess into the neighboring regions, as they are likely to heal spontaneously with the closure of the purulent cavity.

DENTAL CARIES.

BY DR. W. D. MILLER, OF BERLIN.

I have for some time been impressed with the idea that we are all, so to say, afloat in our investigations upon the subject of caries, and my object in this article is to make a survey of the situation, and to find out how the matter stands at present.

The principal feature in all the publications which have as yet been made on this subject seems to me to be a lack of method, and perhaps in some cases an improper conception of the question to be solved.

Many observers have been hunting after "Bacteria," upon whom we could saddle all the blame, without any further examination into the innocence or guilt of these organisms. I have hunted them day and night, and have found enough of them, but I have come to the conclusion that a satisfactory explanation of the cause of caries can never be obtained through the microscope alone.

In general, in conducting any investigation of the lower forms of life, with a view to determining their power of producing disease, the following points must be considered :

1st. Are the organisms in question at all pathogenic—i. e., can they produce disease?

2d. Can they be transmitted from one person to another, or, in other words, is the disease produced by them an infectious one?

3d. In what manner do they find their way into the animal body?

4th. What are the physiological characteristics and history of the organisms, and how are they affected by substances which impede or prevent the development of lower organisms?

Up to the present time, however, little has been done towards solving any of these questions ; the organisms found in and upon the teeth have been thrown into a lump and called Bacteria, or Germs, and the fact of their being in the dental tubuli has been considered sufficient reason for looking on them as pathogenic and infectious, and as producing all the phenomena of dental caries.

We find within the human mouth—

- 1st. *Leptothrix buccalis*,
- 2d. *Vibrio regula*,
- 3d. *Clostrydium butyricum*,
- 4th. *Mycoderma aceti*,
- 5th. *Saccharomyces mycoderma*,
- 6th. *Spirochete dentium* (not *plicatilis*),

not to speak of the *Leptothrix pusilla*, *Penicillium microsporum*, etc., of Klebs (the former of which he considers to be concerned in the production of tartar), or of the *Bacterium subtile*, Bacter-

ium termo, and various other forms of vegetable life, which undoubtedly may be occasionally met with in the human mouth. Now do all these keep gnawing at the teeth, or is there any one of them which is to be looked upon as particularly destructive? In earlier writings upon this subject, attention was paid only to *Leptothrix buccalis*, or rather to the leptothrix form of this fungus, while of later writers some speak of a certain bacterium of the form of a half U, others of micrococci, and yet others are content with the simple appellation of germs.

It seems to me to be of the greatest importance to determine ; 1st, what species of fungus we have to deal with; and 2nd, the morphology, and physiological characteristics of this fungus ; for, until we have done this, a satisfactory solution of the problem of caries must remain an impossibility.

I look upon the *Leptothrix buccalis* as the chief agent in the production of caries. I hope at another time to enter fully into the morphology, etc., of this fungus, so I will now only state that it produces not alone threads, but bacilli, bacteria, micrococci, and most likely screw forms, and that it is the coccus form which is most destructive to tooth tissue. As for Vibriones, they do not appear to perform any part until the decay is in the very last stages, and may practically be neglected altogether.

Respecting the numbers and frequency with which the 3rd and 4th named species occur in the human mouth, very little is known, it being almost impossible, except through certain characteristic involution forms which they build, or by means of the culture method, to distinguish them from *Leptothrix buccalis*. Here there seems to be room for investigation. Both of these fungi create an acid reaction of their substratum, the first producing butyric, the second acetic acid; should they, therefore, develop to any considerable extent in any part of the oral cavity, they would unquestionably prove injurious to the teeth in that part. It is, however, doubtful whether these fungi have more than a transitory existence in the human mouth. The existence of *Saccharomyces mycoderma* I demonstrated some months ago. Since then I have found this fungus in many more preparations ; very often the

cells become so elongated and thin that they are easily overlooked and set down for leptothrix threads.

I think there can be no question of the evil designs of this organism. Of course it is not so mischievous as *Leptothrix buccalis*, but we are reminded that we must keep our eyes open, for there may be some things about caries of which we have not yet dreamed. It is hardly necessary to speak of the other species of fungi which I have enumerated, so I will return to the *Leptothrix buccalis*.

The question of the pathogenic character of this fungus has, I think, been clearly settled. Numerous cases are on record which show, that starting out from the mouth it may penetrate the most various organs of the human body, and everywhere be as destructive as it is to the teeth.

But what role does it play upon the teeth? It is here that our lack of knowledge of the real nature of the fungus makes itself so severely felt. If we were able to say with certainty that it generates an acid or an alkali, or that it leaves its substratum neutral, we would be spared a great deal of unnecessary work and thinking. I have made a great number of experiments with a view of determining this question, and the results have been of a negative character, for, as I have not yet succeeded in producing a pure culture of this fungus, I attach very little value to these results. If I am asked whether I think that acids are instrumental in producing caries of the human teeth, my answer is decidedly affirmative. I would not say in *all* cases, but in a very great many. The fact that a mixture of starch containing food with saliva, at the temperature of the human mouth, generates in a space of four to six hours acids sufficiently strong to soften tooth tissue, is absolutely undisputable. The fact that exactly these conditions are continually to be found in the human mouth is also unquestionable. It follows, therefore, most clearly, that a softening of the tissue of the tooth must take place in the human mouth, when the conditions specified above are present. This softening produced by a withdrawal of lime salts, or by a rupture of the bond of

union between the organic and inorganic portions of the tooth, at once lays it bare to the attack of micro-organisms.

The question of acids, however, I would like to discuss at another time. I wish now to consider only the work of the organisms (*Leptothrix bucc.*) as revealed by a microscopic study of at least a score of hundreds of microscopic sections of carious dentine, subjected to at least a dozen different modes of staining. I have made use of five different methods in procuring my preparations:

a. From a freshly extracted tooth containing a large amount of carious dentine, as large a piece as possible is removed by means of a spoon-shaped excavator; from this, microtome sections are made, some parallel with, others at right angles to the dental tubules.

b. Sections are sawed from carious teeth comprising both the carious and sound part; these, after hardening in alcohol, may be ground sufficiently thin for both the normal and carious parts to be examined with high powers of the microscope.

c. From a carious tooth (freshly extracted, of course,) all the softened dentine is removed *with the greatest care* and ground sections prepared.

d. Ground sections are made from dentine which has been kept at the temperature of the human body, in septic liquids, and in contact with carious dentine since May, 1882.

e. Sections are made from apparently sound, freshly extracted teeth.

The sections are treated in each case for a short time with absolute alcohol, and afterwards stained and mounted in Canada balsam, or in a concentrated solution of acetate of potassium; (glycerine may not be used, as in case of some aniline dyes at least, it abstracts the coloring matter.) I have used Magdala, Methylene-blue, Phenylene-blue, Fuchsin, Methyl-violet, Bismark-brown, etc., etc., etc.

Sections prepared as indicated under (*a*), appear under the microscope as described in the "Dental Cosmos" for January of this year. Such specimens should always be first examined under a

very low power, say 40 diameters, as in this way the distribution of the organisms in the section may be seen at a glance. If the piece of dentine from which the section was made comprised anything like nearly all the softened dentine in the cavity, we will find in the section, almost always, large tracts which contain no organisms, and in which the dentine is perfectly regular and shows no anatomical changes whatever.

In sections cutting the tubules at right angles, I frequently find fields containing from 8,000 to 10,000 tubules, of which not more than half a dozen contain micro-organisms; in other large fields the micro-organisms are strictly confined to the tubules.

The question suggested by these cases is this: what produced the softening of dentine in those parts which are free from micro-organisms? I, for my part, know of no way in which this softening can be accomplished, except by acids. I do not say that there may not be other agents, neutral or alkaline, which can accomplish this; I only say, we know of no other.

Whether the micro-organisms themselves assist in generating the acid which produces the softening of the dentine, can, as I have before remarked, be determined only by the pure culture.

Sections prepared in the manner described under (b), very frequently unmistakably show a zone of softened, not infected, dentine, intervening between the normal and infected dentine, nor have I as yet found a case where I could be sure that the organisms crossed from the softened into the perfectly sound tissue; most certainly not sufficiently so to produce any anatomical changes. This is a point which requires very careful study, as it is sometimes almost, if not altogether, impossible to determine the boundary between the carious and normal dentine, and even those cases in which they appear to have passed into the normal dentine, or rather into the tubules of the normal dentine, may be easily misinterpreted. The diameter of the dental tubules is considerably greater than that of most micro-organisms found in the oral cavity. When, therefore, the open ends of the tubuli are exposed, a coccus might enter it just as he might enter a glass tube

of the same diameter. In the former case, no more than in the latter, does the mere presence of the organisms give us the slightest right to attribute to them the power to destroy either the one tube or the other.

This is a fact which I think has been entirely disregarded. A bacillus found in the sputum of a certain person does not prove that person to be a sufferer from tuberculosis; a micrococcus found in a vein of the kidney does not establish a case of abscess; neither does a micro-organism of any sort found in a tubule of apparently sound dentine prove that that dentine is or ever will be carious; nor does the finding of micro-organisms in the tubules of softened, so-called carious dentine, entitle us to attribute the softening to their action.

Not until we see definite anatomical changes in the dentine itself, directly traceable to the action of the micro-organisms, is it allowable to look upon them as a factor in producing the caries. Beyond that all is, as yet, simple guesswork.

In many cases the discoloration of the dentine is a guide, but this does not always answer.

There are various kinds of bacteria which have the power of forming a coloring matter, soluble in the medium in which they vegetate, so that not only the organisms themselves as seen *en masse*, but their substratum as well, acquire a deep red, blue, violet, yellow, or other color. But in the thousands of sections of carious dentine which I have made, I have never yet met with anything in any way entitled to be called a pigment bacterium, nor am I aware that any observer who has made an exhaustive study of the different species of micro-organisms found in the human mouth, has ascribed to them any power to produce pigment. Thin sections of very carious dentine show, even to the naked eye, the perfectly colorless patches of micro-organisms. Moreover, I have never seen any color in carious dentine which I have not repeatedly produced by the action of acids, or exposure to the air.

Specimens prepared as indicated under (c), contain very often, not a trace of an organism. It requires a great amount of care to be sure that you have removed all the softened dentine and no

more, as a layer $\frac{1}{100}$ m. m thick, left in the bottom of the cavity, might be sufficient to destroy the value of the experiment. I use for this purpose a blunt spoon-shaped excavator.

Specimens prepared according to (d), show that a limited number of organisms have entered the tubules, a fact of little importance, because, as above suggested, if we should fill a system of glass tubes of the same diameter as the dentinal tubes with organic matter, and place it for some months in a septic liquid, a section made parallel to and through the middle of one of the tubes would most likely reveal micro-organisms of some kind, but we would scarcely accuse them of an attempt upon the glass itself.

I suppose a coccus could enter a dead dentinal tubule about as readily as a glass tube of the same diameter; to enter a living tubule he must, of course, first overcome the resistance offered by the dental fibril, which he undoubtedly can do. This does not signify that he can in any way attack the unchanged basis substance. As a matter of fact, the sections under consideration show no anatomical changes whatever; no expansion of the tubules, no breaking through of the basis substance, or any other structural change. Examined microscopically they do not appear to be changed in the least, the edges and corners being as sharp and hard as when they were put in the flasks nine months before, although I have taken care, by frequently adding fresh carious dentine, that the state of the liquid should be as septic as anything ever found in the human mouth, and much more so, and have kept them at an agreeable temperature (cold, hard dentine doesn't seem to be to their taste), yet they seem to have made no impression upon the pieces used.

Again, if we examine a freshly extracted carious tooth, we will find, say on the grinding surface, the enamel broken through and the dentine softened to the depth of 1 to 2 m. m. Now let us suppose that this whole process has been caused by fungi alone. If, then, we place the tooth under conditions of moisture and temperature favorable to the development of these fungi, the carious process should continue. The enamel should dissolve away more and more, and the dentine become softened deeper and deeper.

This experiment I have repeatedly tried, and have invariably found that after a lapse of from three to five weeks, the dentine which was previously softened has become entirely consumed. The softening has, however, entirely ceased, and the walls are found to be perfectly hard, and if the cavity is syringed out with water it will be found to be as clean as though some scrupulous dentist had prepared it for filling. In other words, we obtain a result entirely contrary to our expectations and as unlike ordinary caries as it could well be.

I have made but four microscopic preparations from such teeth. Three of them do not contain a single coccus which may not be called accidental, while the other shows half a dozen tubules containing as many cocci as might be counted on one's fingers, the tooth not having remained sufficiently long in the liquid for all the softened dentine to be consumed.

It appears to me, on the whole, that the idea that any Tom, Dick or Harry of the world of fungi, who happens to get into the human mouth, at once sets to work to pick the teeth to pieces, is without much show of reason, and to make caries absolutely dependent upon these same agents is still more questionable.

Preparations of the kind indicated under (*d*), are sometimes very instructive. I will describe only one case. A section was ground from a tooth which had been over thirty years in the human mouth. The section revealed a circle of interglobular spaces, extending completely around the pulp cavity just beneath the enamel. Through a deep, broad fissure in the enamel, cocci had gained access to the interglobular spaces, and, passing from one to the other, had filled every space for full three quarters of the distance around the section. Whether they had made that their home for one, ten or twenty years, it is not possible to say. At any rate the dentine did not appear to have suffered in the least from their presence, and only now and then a few cocci appeared to have forced an entrance into the dentinal tubuli for a fraction of a millimeter, without in any way encroaching upon or invading the basis substance.

I have said nothing as yet about enamel, which, whatever may

be the cause of caries, is the first and strongest barrier to be overcome. I have a large number of preparations of carious teeth, comprising both the enamel and dentine, and I can only say that as far as I am at present able to judge, indications of a purely parasitical caries of the enamel are very meagre indeed.

To sum up my views of the etiology of *caries dentium* then, I believe as follows :

1st. Caries of the teeth is not entirely of a parasitic nature.

2d. The first stage of dental caries consists in a softening of the tissue of the tooth.

3d. In effecting the softening, acids, particularly those generated by fermentation, often play a very important part.

4th. Whether micro-organisms are or are not concerned in the production of the first stage of caries, or whether any other agent is concerned in the process, (be it in the form of a simple solvent, or be it a pathological action on the part of the tooth itself,) are questions which certainly, as yet, cannot be satisfactorily answered.

5th. Destruction of the enamel may take place quite independently of micro-organisms.

6th. The second stage of caries, devitalization and breaking down of the softened tissue, is entirely parasitic, and is inaugurated chiefly, if not wholly, by the elements of the *Leptothrix buccalis*, while later on various other fungi may take part in the decomposing process.

From this it may be seen that I am a believer in acids, a believer in micro-organisms, and a believer in an unknown cause ; that is, I believe that there are agents active in the production of caries which are yet to be discovered.

I have attempted in this hurriedly-written article, not so much to point out what the fungi of caries can do, as what they do not do, or rather what my preparations do not prove that they do, for although their powers for evil are very great, yet I believe that there is a tendency to overestimate them, and to jump to conclusions which can hardly be said to be sufficiently well supported by facts.

Selections.

THE VEGETABLE NATURE OF CROUP.

A PAPER READ BEFORE THE AMERICAN SOCIETY OF MICROSCOPISTS, AT ITS
ANNUAL MEETING, AT ELMIRA, AUGUST, 1882.

BY EPHRAIM CUTTER, M. D., NEW YORK CITY.

January 21, 1879, Clarence, aged four years and six months, child of Major E. F. and Abby F. Wyer, of Woburn, Mass., (near Boston), was taken with croup at supper-time. Always well before, save a lung fever in December, 1878, whooping cough in July, 1878, and an attack of simple croup on the 14th of January, 1879. The prominent symptoms were dyspnea of a dreadful character, aphonia constant; air exhaled readily, but inhaled with difficulty; body-surface not hot or feverish, and pulse not much quickened; respiration hurried. He was vomited and put on the ordinary means of relief, including the sub-sulphate of mercury. Though there was no membrane visible in the throat, still he grew rapidly worse, and on the 23d, while I went for tracheotomy tube, he died.

The parents were unusually willing to have all possible light thrown upon the case, so a *post-mortem* examination was readily granted, and performed on the next day in the presence of Drs. S. W. Kelley, G. W. Grayes, A. P. Woodman, G. P. Bartlett and J. M. Harlow, all then of Woburn. I found the larynx filled with a thick, tenacious mass, that appeared to be distinct from anything else above or below it. On removing this plug it was found to be only about half an inch in length and thickness. Microscopically examined, the physicians assisting were unanimously of the opinion that it was made up of a true animal membrane, and was decidedly not vegetable in its nature and structure. On this ground it was reasoned that we were dealing with croup, and not diphtheria. The larynx and trachea were removed, and with a clinical microscope of the Boston optical works, which embraced a $\frac{1}{5}$ inch objective, three systems of lenses, 180° of angular aperture, and a one-inch

eye-piece, making an amplification of about 400 diameters, I examined the plug and its membrane, with scrapings also from the trachea and secondary bronchi. *In all I found mycelial fungus filaments, single and in skeins of beauty.* From this examination I was led to change my opinion as to the animal character of the membrane. The gentlemen present, not being experts in the use of the microscope, of course had no opinion to express different from that already announced.

Hence, in view of the great importance, in a clinical point of view, of settling the real nature of the membrane, I employed the eminent algologist, Prof. Paulus F. Reinsch, of Erlangen, then temporarily sojourning in Boston, to study the pathological products found in the larynx and trachea, botanically and histologically. Immediately, he detected the mycelial filaments, and then went to work to cultivate the fungus, so that he might be able to identify it by the fructification. He also examined the tissues of the *post-mortem* specimen. It will be seen by his report that he agrees with me in my examination ; *so that there are two witnesses to testify to the nature of this apparently animal membrane being a vegetable structure.* If this is the case in all instances of croup, the importance of this contribution is at once apparent.

REPORT BY PROF. P. F. REINSCH.

The larynx and trachea bear a remarkable fungoid vegetation, belonging to three, or at least two, different fungi. In the upper part of the larynx are prevalent cells of more rounded form, doubtless different states of evolution belonging to one or two different species of *Hyphomycetes*. The lower part of the larynx, as well as the trachea, was found overgrown with filamentaceous cells, inclosing short, rounded cells, resembling very much the mycelium, with interspersed spores characteristic of the *Mucorineæ*. The parasitic vegetation is found to be composed as follows :

First—Isolated spherical cells of .015 m. m. diameter, with constantly one nucleus ; the plasm densely granulated.

Second—Two celled bodies, composed of smaller transverse ellip-

tical cells, inclosed in the same involucre; sometimes one cell is larger.

Third—Cellular bodies composed of four elliptical cells, forming short, rounded filaments.

Fourth—Spherical, four-celled bodies, composed of elliptical cells, mostly irregularly connected.

Fifth—Larger, irregular or tetragonal cells, with thick, laminated covering, with densely granulated plasma of reddish brown color.

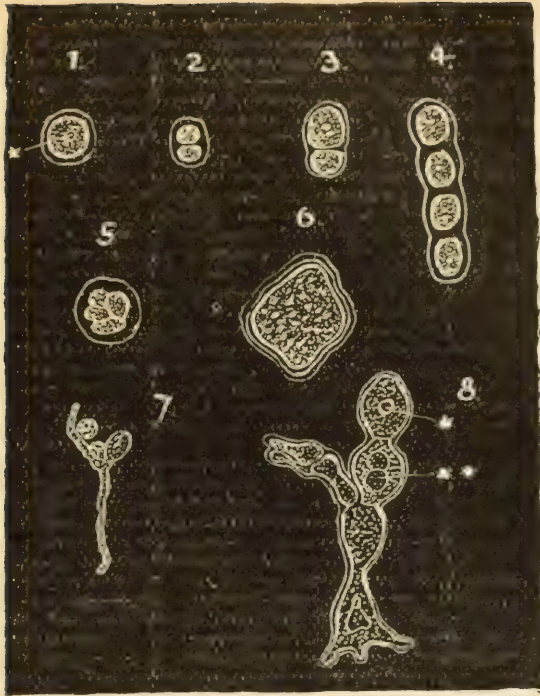
Sixth—Short filaments, composed of short elliptical cells, on both sides, shortly angulated, with distinct nuclei; short two or more celled branchlets, of different shape and size, are mostly attached to them.

Seventh—Irregular, lancet-shaped cells, attenuated on both ends; constantly one distinct nucleus; plasma with larger transparent granules.

Eighth—Smaller elliptical cells, connected with hair-like filaments; several cells sometimes are accumulated together on short branchlets.

Ninth—Curved, lancet-shaped cells, three to five attached together, connected with filaments, the whole body resembling very much, budding two or more celled spores of *Hyphomycetes*.

Tenth—Undivided, long mycelial filaments, with distinct membrane and densely granulated contents, forming a tissue-like stroma, spread out all over the surface of the trachea, the lower part of the larynx, as well as within the mucous membrane, so that a transverse section of the lower part of the larynx, shows the peripheral discolored stratum of nearly 2 m.m. height, to be composed only of entostromatic filaments and elliptical spores, intermixed with fibrous epithelial elements belonging to the mucous membrane. Spores of 0.013 m.m. diameter and ovoid circumference are frequently found interspersed between the fungoid filaments; spores and filaments, without any doubt, biologically connected.



EXPLANATION OF FIGURES.

Fig. 1. Isolated spheroid cells embedded in the mucous membrane of the larynx. Diameter, 0.015 m. m.; $\frac{263}{1}$.

Fig. 2. Two-celled chroococcoid body of the mucous membrane. Long diameter, 0.018 m. m.; $\frac{263}{1}$.

Fig. 3. Two-celled chroococcoid body; cells of unequal size. Long diameter, 0.022 m. m.; $\frac{263}{1}$.

Fig. 4. Four-celled filamentaceous body. Long diameter, 0.016 m. m.; $\frac{263}{1}$.

Fig. 5. Four-celled spherical body. Diameter, 0.0266 m. m.; $\frac{263}{1}$.

Fig. 6. Irregular tetrametrical cell, with thick, laminated covering. Maximum diameter, 0.018 m. m.; $\frac{526}{1}$.

Fig. 7. Short, undeveloped filament, with adherent, small, rounded cells. Long filament, 0.0269 m. m.; diameter of sporangia, 0.0072 m. m.; $\frac{263}{1}$.

Fig. 8. Filament composed of irregular-shaped cells, producing two sporoid cells; one with one nucleus, the other with two nuclei. Diameter of sporangia, 0.0198 m. m.; $\frac{263}{1}$.

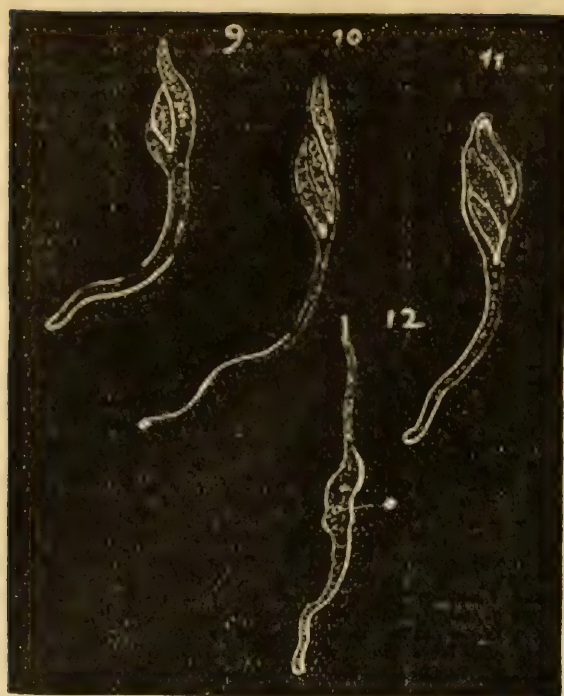


Fig. 9. Short filament, producing on the top, lancet-shaped, curved cells. Long diameter of cells, 0.018 m. m. ; $\frac{263}{1}$.

Fig. 10. Another filament of the same formation, more developed ; three developed cells on the top. Long diameter of cells, 0.0254—0.028 m. m. ; $\frac{263}{1}$.

Fig. 11. Another filament of the same formation ; four developed, curved, lancet-shaped cells on top. Long diameter of cells, 0.0216—0.028 m. m. ; $\frac{263}{1}$.

Fig. 12. Isolated, irregular, lancet-shaped cell, with attenuated ends ; distinct nucleus ; $\frac{263}{1}$.

Fig. 13. Part of the mycelial stroma with interspersed spores, embedded within the mucus membrane of the upper part of the trachea ; $\frac{180}{1}$.

Fig. 14. Single sphero-elliptical shaped spore with attached filament, doubly magnified.*

Fig. 15. Part of one mycelial filament. Diameter transverse, 0.003 m. m. ; $\frac{720}{1}$.

*See Gaillard's Medical Journal, May, 1882, for like cells found in diphtheria and scarlet fever, on skin, in throat, urine and blood.—*Dr. Salisbury.*

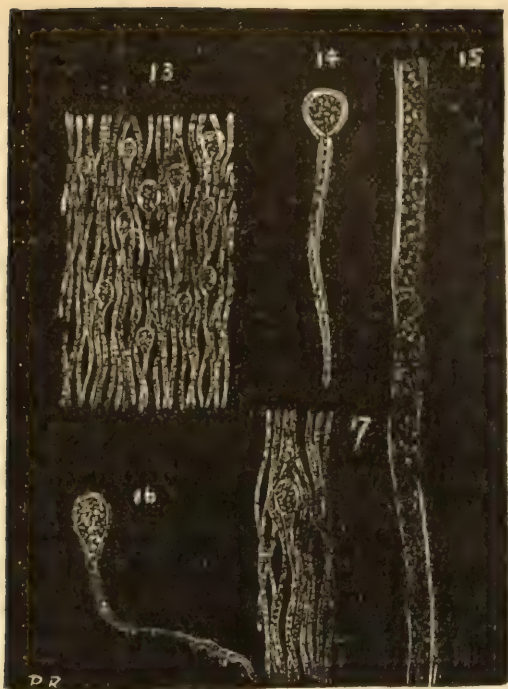


Fig. 16. Budding ovoid spore from the same part of the trachea; the short filament connected there with incrassated micro-spores on the curved end. Diameter of spores, 0.013 m.m. ; $\frac{360}{1}$.

Fig. 17. Part of the mycelial stroma with one embedded spore; $\frac{360}{1}$.

REMARKS.

The most important point in this expert report is that the vegetable nature of the substance of the membrane is clearly made out. To be sure, some of the epithelial elements are distinguished in connection with the vegetable growths. Still it must be remembered that the host in this case is an animal, to-wit, man. So that it would be expected to find some animal tissues in the membrane. While it would not be safe to say that all croupal membranes are vegetable, still these examinations go to show that when examined by those who are acquainted with the subjects of micrographical botany, they may prove to be vegetable, as here.

The present was a rare opportunity to have such an authority study the morphology of the membrane in croup. As far as it.

goes, we can see no reason to doubt his decision and the satisfactory nature of the report. We conclude then :

First—That the inflammatory processes were secondary to the vegetation.

Second—The report shows that the vegetation penetrated the tissues of the larynx and trachea below.

Third—Regrets were expressed at the post-mortem examination that tracheotomy was not performed, but the fact that the vegetation was imbedded in the parts below the point of obstruction, shows that tracheotomy might not have been a success.

Fourth—If anything can be learned from this teaching, it shows the necessity of attacking the disease from the vegetable point of view. It would rather prohibit the pushing of anti-phlogistic measures, since the inflammation must be secondary, not primary.

Fifth—We should then perhaps rely on parasitocidal means, such as inhaling the fumes of burning sulphur, sprays of salicylic, carbolic and thymic acids, putting into the system as much food as possible, that is, good chemical, physiological and nerve food, easily assimilated and digested, so that the system can bear up in the fight. Or the sulphate of quinine might be sprinkled on the tongue—one grain once an hour or two hours, as shown with much success by Dr. Salisbury in diphtheria and scarlet fever.—*Vide essay.*

Sixth—The expert results were not indicated by any “leading strings.” Indeed, it was rather a surprise to the medical gentlemen present that their decision as to the nature of the membrane should be so summarily upset, and yet they are a good average representation of the talent that has to handle such cases in the clinical point of view, on whom human lives depend, medically speaking.

Seventh—This case shows up how much we have to learn as to a disease that is so fatal and dreadful, and the need of more use of the microscope.

Finally, it is to be hoped that Prof. Reinsch may have other opportunities to study this disease further.

Editorial.

TO YOUNG PRACTITIONERS.

Dentists of age, experience and reputation, are oftentimes in the receipt of letters from young practitioners, inquiring what instruments, materials, or remedies they employ, in the hope that by using the same they will reach like results. A young dentist sees a beautiful filling in the mouth of a patient, and enquires who was the operator. On being informed that it is Dr. A.'s work, he writes the experienced practitioner asking what gold he used, what instruments, and if the filling was inserted by mallet or hand pressure. He receives a courteous answer, and is told that crystal gold was employed, and the filling consolidated by hand pressure. He tries the same methods and materials, but his work proves an utter failure. Applying in this extremity to Dr. B., who is celebrated for his operations, he is assured that crystal gold is a humbug, and is favored with a long lecture upon the uses of the mallet. Straightway the seeker after ready-made excellency casts aside all his old methods and instruments, procures a set of the latest agony in mallet pluggers, some special foil, and goes to work, only to find that in his hands the new method is as complete a failure as the other, and down goes his head in the bulrushes again. But hope springs eternal in his student breast, and hearing much of the wonderful work of Dr. C., away he goes on another pilgrimage, in search of a short cut to glory. Dr. C. tells him that the mallet is a mocker, and soft gold is raging, and whosoever is deceived thereby is not wise. Electricity, cohesive gold, and contour ; these are the things my boy, and through them you may reach your goal. He invests in a battery, becomes familiar with bichromate of potash and carbon plates, only to discover that true excellence does not lie in sulphuric acid or rolled zinc.

And so the zealous and foolish student in search of a royal road to eminence, will seek to take ready-made the experience of others, make some patent process supply his lack of patience, a gimcrack ingenuity answer instead of perseverance, and finally to rise to the summit of his profession by sheer empiricism and charlatanry. If

he has sufficient ability it is ten chances to one that he takes a New Departure, flings to the winds all the long treasured wisdom experience and dexterity of generations, and adds some new patent to the long list of tomfoolery that has been inflicted upon a suffering profession. Beginning with an honest and earnest desire to become skillful, he takes the wrong road, and finally, discouraged and disheartened by his inability to find the goal of his ambition, he turns quack and sets up a toll-gate at the entrance of a new path to professional perdition.

Long ago Euclid declared that there is no royal road to Geometry. The young practitioner who proposes to reach the front rank has cut out for himself a rough path, but if he has some ability and a great deal of industry and perseverance his success is certain, because the majority of young men are lazy, and propose to try a short cut, while it is only those who toil painfully around the rough road, creeping every foot of the way, that reach the summit. The expert manipulator, who has by years of the hardest kind of labor made every step familiar, is not particular about what gold he uses. His knowledge of methods and his manual dexterity are such that he can produce perfect results with almost any good instrument, and in the absence of these he will fashion a plugger out of a rusty nail, and with this will secure triumphs unknown to the inexpert. A good fisherman will catch fish with a bent pin, while the awkward novice will flourish his bamboo rod and cast his patent fly in vain.

One of the most eminent surgeons of to-day performed the Cæsarean operation upon a backwoods patient, with only a jack-knife for a scalpel. Many miles from his office, without an instrument case, he operated with what implements the house afforded, and saved both mother and child. But his success should not inspire another to ignore all proper tools and fit appliances, and lead him to depend upon improvised substitutes. The happy tissue of the case was due to the surgeon's knowledge and experience, and these were the fruits of long years of hard labor and exhaustive study. They took the place of the proper utensils, and they were sufficient; but the surgeon who has neither experience

nor instruments, is scarce clear of the crime of murder if he unnecessarily attempts an operation.

The young dental practitioner, fresh from college, just entering upon practice, encounters obstacles which he is sometimes little prepared for. He has learned to consolidate gold in an extracted tooth held in a vice. Under the watchful care of an experienced demonstrator he has worked upon the living patient, and has been made familiar with the theory of operative dentistry. But when removed from the superintendence of a master he attempts an independent practice, and his operations are submitted to the test of time, he has the mortification of seeing his proudest achievements fail, and the fatal blue line at the margin of fillings teaches him that there is a mistake somewhere. He has worked precisely as he was taught, and his freshly-completed operation looked quite as well to his comparatively inexperienced eye, as that of his teacher. He does not see the microscopic imperfections, and in his perplexity he perhaps seeks refuge from an acknowledgement of his manipulative inability in some such subterfuge as "incompatibility," or "chemical erosion." If he will go back over the ground again and again, until experience has made him a competent judge, if he will be entirely honest with himself, he will no longer endeavor to place the responsibility for his failures where it does not belong.

The material used is a secondary consideration in the saving of teeth. Skill equal to the occasion, and uncompromising faithfulness are the first requisites, but these premised, of course he can secure better results with a good material than with one that is inferior. If any one would learn the secret of the success that attended upon such operators as Varney and Webb, it is here, in a nutshell: skill, the result of a long and painful experience, and faithful, honest, laborious work. Both of these eminent operators had wrought a hundred times harder in acquiring their manipulative ability than they did in performing an operation afterwards. Both fell victims to their unsparing faithfulness and their untiring fidelity, but both left behind them reputations that should be an inspiration to every honest dentist.

Neither was without failures, but when such were detected neither asserted his own infallibility, and attempted to throw the blame upon the materials used, or the environments of the case. Both may have had faults, but they were free from that most monstrous one of attempting to deny them.

“The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings.”

There is hope for the dentist who acknowledges his errors and endeavors to profit by his mistakes, but for him who would screen himself from deserved censure by attributing his failures to anything but his own slovenliness, the really honest man can entertain no other feeling than that of contempt. Every experienced dentist has seen the most enduring fillings made of comparatively poor materials. Go into the office of one of the older dentists, who acquired his skill and made his reputation before the advent of the modern machinery that is so indispensable to the younger operator, and you will doubtless find him turning out the most beautiful and perfect operations with appliances which seem totally inadequate. Long experience has made him the master of the tools he uses, and he wisely declines to attempt to learn new tricks. For his trained hand and laborious faithfulness modern methods and improvements are unnecessary. But all the cunning implements fashioned by the hand of man could not take the place of that experimental knowledge, that serious, stern determination to do his best, that has made him what he is. If there be upon earth one spectacle more sublime than another, it is that of the sturdy, honest, faithful dentist, who gives to every operation the very best fruits of his ability, and through a long life renders to every patient the full return for that which he receives. There are so many temptations to dishonesty in our profession that it is little wonder that few succeed. It is so much easier to putty up a tooth with some patent compound than it is to insert a thorough gold filling, perfect at every point, that young men who love their ease seldom turn out good operators in foil. Rubber dentures are so readily inserted, and afford such opportunities for the indulgence of indolence, that the race of gold-plate workers has become almost

extinct. If one would find an honest executor of his estate, let him seek for an expert in gold work, for it necessarily follows that the man who is honest with himself, and faithfully laborious in his profession, would not prove recreant when other interests were entrusted to his keeping.

We are not pleading in this article for the use of gold. There is room for conscientiousness in the employment of other materials, but while slovenly work may for a time pass muster with them, gold more quickly betrays the careless dentist. Our original proposition was that teeth are not saved by any particular method or material, but by intelligently directed, hard work. A great painter was once asked with what he mixed his pigments. "With brains," was the answer, and the successful dentist might return the same when asked with what he filled teeth. If a visit be made to the lumber room of almost any dentist who has been years in practice, there will be found a collection of curious contrivances and discarded devices, accumulated in his earlier years, in the vain attempt to make intricate machinery or mechanical ingenuity take the place of laborious skill. He has long since learned the futility of all such efforts, and as a consequence they are banished from his work rooms. But dentists of the next generation are still busily engaged in the same hopeless task, until they too are taught by a like bitter experience. Without the knowledge to properly use them, they procure power engines and electric pluggers, and when the work done with them fails, the blame is thrown upon the implements, and they are cast aside as worthless. It is criminal for the experienced dentist to advise the tyro to commence his career by any attempt to rely upon machinery, until he shall first have fully learned to do his work without them. When this is accomplished, he may safely procure them as aids to lighten his labors, and he will be enabled to intelligently employ them without injury to the tissues which they might otherwise destroy.

Teeth, then, may be saved with amalgam, with gold, with gutta-percha, with tin, but not *by* either of these materials. It is intelligently directed skill, and faithful, honest, persevering hard work, that makes the really successful operator, and the young .

practitioner cannot too early or too thoroughly have this fact indelibly impressed upon his mind.

THE NEW MEDICAL CODE.

There is no denying the fact that the controversy in the State of New York over the new Medical Code, is becoming acrimonious and bitter. This is greatly to be regretted, for it makes any compromise difficult, and tends to prevent the peaceable acceptance of the result by the minority, should the question at any time be definitely decided. An appeal to the prejudices of some men is far more productive of results than an address to their reason, hence the danger that the question will not be dispassionately settled, and that extreme partizans will take advantage of this fact to remain recalcitrant. All classes of medical men will readily declare themselves in favor of true progress, but will honestly differ in their estimate of so decided a step as that proposed by the advocates of the new code. Upon its face, the question of permitting a regular practitioner to give his advice in a critical case to any patient who may desire it, does not seem very alarming. But if this carries with it an acknowledgment of all the various isms and pathies by which medicine is vexed, it is well to think twice about it. If medical science be a science at all, there can be but one school, and the practitioners of that school are not only at liberty to use, but are in duty bound to employ every remedy which proves efficacious in the control of disease. It matters not whence the drug is derived, it belongs to every medical man. That physician who refuses to employ a remedy because it was first brought into favor by some irregular practitioner, is recreant to his duty. The virtues of cold water were known to medicine long before Hydropaths endeavored to found a school upon its exclusive use. It ought not to be a crime for an educated physician, when a human life is at stake, to point out to a specialist, in the consultation room, that a good thing may be abused. But the acknowledging of a cold-water fanatic as a competent medical man, is quite another matter.

Whatever is done should be by the profession as a whole, and the

disrupting of fraternal professional relations is a thing to be deplored. Therefore, the proposal to refer the whole matter to the American Medical Association, provided there can be a full and fair expression of professional preferences, would seem to be the easiest method of settling the vexed question. Meantime the Homeopaths, the most numerous of all the outside medical sects, are standing by, amused spectators of the struggle.

A LOOK AHEAD.

THE INDEPENDENT PRACTITIONER has not always sailed in quiet waters. The ambition of its founder was an honorable one, and he has for years labored to establish a journal that should be the exponent of a better practice, the representative of the highest possibilities of the dental profession. It has always been a clean journal, uncontaminated by isms or pathies. It was his highest desire that it should be the index of those who were treating oral diseases, the connecting link between the medical profession and her young specialty offspring. In the effort to accomplish this task he has sacrificed both money and health, and he now feels that the time has arrived when he must abandon the helm, and turn his attention to other pursuits. But he is loth to see a journal which has so far preserved its independence, and kept aloof from all commercial interests, become the organ of any dealer in dental materials, and still less can he bear the thought that this child of his anxiety should cease to have a place in the literature of his profession. Both mind and body, however, absolutely require a change. In this emergency he has appealed to certain well-known dentists, and they have come to his relief.

It is not, at the present time, either expedient or wise to announce the arrangements which have been made for the future of this journal. In the next issue we hope to be able to lay the whole matter before our readers. Suffice it to say, for the present, that for every dentist who loves his profession and desires its best good, we think a joyful surprise is in store, and that if present projects do not miscarry, a field of usefulness opens before THE

INDEPENDENT PRACTITIONER, which will be the fruition and accomplishment of all the hopes of its founder. It will be placed upon a secure basis, and beyond the chances of financial disaster. It will be sure of an abundance of excellent matter for publication, and will be certain and regular in its appearance.

While no longer distinctively a medical journal, it will contain much that will be especially interesting to medical men, and it hopes for an increased patronage from the parent profession. Until the projected scheme is accomplished it will be managed and conducted by the present editor, to whom all communications should be addressed.

AN APOLOGY.

We are sure that when our readers come to know the circumstances under which the April and May numbers of this journal were issued, they will forgive all editorial deficiencies, and pardon the delay in their reception. While we are at it we might as well clear our conscience completely, and ask indulgence for a meditated fault. The June number will not be sent out until about the middle of the month, but we hope that when all contemplated changes shall have been made, there will not again occur a necessity for this most ungracious of tasks, the apology for necessary delay. For the dearth of editorial matter in this number we are not at all sure that any excuse will be demanded, but if it should be, we must plead the unusual extra duties imposed upon us, and offer in expiation the two leading original communications, which all will agree have sufficient merit to atone for any editorial shortcomings.

DR. LEIGH H. HUNT.

It was with sincere sorrow that the resignation of the medical editor of this journal was received. He had exhibited such unusual editorial ability, and had proved so genial and kindly in his editorial relations, that it was a severe blow to all his associates.

But inexorable duty demanded his withdrawal, a duty so plain and uncompromising that there was nothing left but acquiescence. He has the very best wishes of THE INDEPENDENT PRACTITIONER for his future welfare, but his departure throws a quadrupled task upon his unfortunate associate, and this must account for the lack of medical matter in this number. Next month we hope to do better.

HARDENING PLASTER CASTS.

When it is desirable to preserve a plaster cast, or when it is important that it should not be marred and injured by handling, it may be hardened by boiling it for half an hour in a strong solution of potash alum. If such a preparation be kept at hand, ready for use when required, it is but little trouble or labor to make models that are almost like metallic casts, and much of the annoyance and vexation of laboratory work may thereby be avoided.

Another method of hardening is to thoroughly dry the plaster and paint it over repeatedly with thin shellac varnish, drying the cast between the application of the different coats, until saturation is accomplished.

OUR EXCHANGES.

Will our exchanges who now send to the New York office of this journal, or to the former Medical Editor, kindly change the address and direct to the editor, at No. 11 West Chippewa Street, Buffalo, N. Y. We are well aware that it is a task to overhaul the books for such a purpose, but if they only knew how earnestly we desire it, and how much we dislike to lose a single number, we are sure that all our contemporaries would cheerfully comply, as we should be happy to do under like circumstances. Remember that *all* communications to THE INDEPENDENT PRACTITIONER should now be sent to Buffalo.

Current News and Opinion.

SOUTHERN DENTAL ASSOCIATION, AND GEORGIA STATE DENTAL SOCIETY.

Having received a special appeal from the South Carolina Dental Association, endorsed by prominent gentlemen in our profession from various parts of the United States, and approved by the Executive Committee of the Southern Dental Association, I do hereby direct, and it is so ordered, that the next meeting of the Southern Dental Association be held in Atlanta, Ga., commencing Tuesday, July 31st, 1883. This change is made to accommodate those in the South who wish to attend the Southern, and then go to the American Dental Association at Niagara Falls, afterward remaining North for their vacation. Also for those in our profession who belong to the order of Knights Templar, and are contemplating a pleasure trip to California, in August. The Georgia State Dental Society will meet at the same place, on Monday, July 30th.

Respectfully Yours,

L. D. CARPENTER,

President Southern Dental Association.

D. HOPPS,

President Georgia State Dental Society.

ATLANTA, Ga., April 28th, 1883.

THE MISSOURI DENTAL JOURNAL.

This sterling periodical too, is undergoing material changes. For the past five years it has been ably conducted as an independent journal, by Dr. C. W. Spalding, of St. Louis. But fresh enterprises have engaged his attention, and he can no longer devote any time to professional journalism. He has therefore disposed of his interest, and henceforth the *Missouri Dental Journal* will be published from the Kansas City Dental Depot. Its editor is not yet announced, but it always was ably conducted, and we doubt not it will continue to be. While we regret the passing, we hail the coming management.

UNION MEETING AT SPRINGFIELD, MASS.

The Massachusetts Dental Society, and the Connecticut Valley Dental Society, will hold a joint convention at Springfield, Mass., June 6th, 7th and 8th, prox. It is proposed to make this meeting one of the best ever held in New England. The executive committees of the two societies are actively engaged in completing arrangements, and have announced papers from the following gentlemen :—

Dr. W. G. A. Bonwill, Philadelphia;

Dr. R. R. Andrews, Cambridge;

Dr. T. H. Chandler, Boston;

Dr. D. M. Clapp, Boston;

Prof. Chas. Mayr, Springfield;

Dr. W. C. Barrett, Buffalo.

The setting of artificial crowns will be demonstrated in clinics by Dr. H. W. F. Buttner, of New York; Dr. H. A. Baker, of Boston; and Dr. E. P. Brown, of Long Island.

All dentists are cordially invited to attend the meeting, whether members of either society or not.

COMPLIMENTARY.

Dr. J. Edward Line, Secretary of the Dental Society of the State of New York, won both gold and golden opinions at the late meeting. He was unanimously re-elected, and unanimously voted the sum of one hundred dollars—not in payment for, but in acknowledgement of his faithful and intelligent services. So much of the success of a dental meeting is dependent upon the secretary, that it is no wonder that when one like Dr. Line is found, every member is interested in keeping him in office as long as he can be persuaded to accept it.

Bibliographical.

A Handbook of Materia-Medica and Therapeutics for Dentists and Dental Students; by D. R. STUBBLEFIELD, A. M., M. D., D. D. S., Professor of Anatomy and Physiology in the Dental Department of Vanderbilt University.

The time when dentistry was but a mere mechanical art has long since passed away, and the dental student of to-day, if he has an ambition to become a peer among his fellows, must have a thorough knowledge, not only of anatomy and physiology, but of the various remedies which he will be called upon to prescribe. The most of the medical text-books contain matter which it is not absolutely essential that practitioners of dentistry should master. It is better that the average dentist should know well the properties and therapeutical value of such drugs as he will most frequently be required to use, rather than that he should attempt to gain a smattering of the whole medical pharmacopœia. To the attainment of this end, text-books, peculiarly adapted to his needs, are required. Heretofore the chief reliance has been upon the excellent materia-medica of Dr. Stocken. But this has not completely met all wants, and we were therefore prepared to receive a new work with favor.

An examination of Dr. Stubblefield's work has given us great pleasure, and already it has become almost indispensable as a book of ready reference. It is not entirely devoid of errors, but the concise system upon which it is written will commend it to every dental practitioner. The amount of information concerning every remedy which the dentist will be likely to use, that is crowded into so small a compass, is surprising, yet so perfect is the collocation that almost at a glance all the prominent characteristics may be seen.

The consideration of Chloral Hydrate, for instance, occupies nearly two pages. Within this space is given its officinal and common names, its symbol, its history, its method of manufacture, its physical characteristics, its antagonists, incom-

patibles and antidotes, its synergists, its action and uses, its therapeutical virtues and vices, a list of diseases and conditions in which it is especially valuable, the usual doses, and a number of written prescriptions. The same system is pursued with other remedies, and a very complete index enables the student readily to find any information of which he may be in search. We commend the book to every dentist who desires to practice intelligently. It may be procured of the author, at Nashville, Tenn.

Some of the Opportunities, Responsibilities, and Encouragements of Life. An address delivered before the Massachusetts Dental Society, at its eighteenth annual meeting, in Boston, December 14th, 1882.

By C. A. BRACKETT, D. M. D., of Newport, R. I.

Published by request of the society.

A pamphlet which every thinking man, whether professional or non-professional, would do well to read and seriously ponder over. Dr. Brackett is known as an accomplished writer, and nothing better than this has come from his pen.

We have received from the S. S. White Dental Mfg. Co., but too late for critical notice in this number, *Notes on Operative Dentistry*, by Marshall H. Webb, D. D. S. It will receive due attention next month.

Original Translations and Abstracts.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

The fifteenth annual meeting of the New York State Dental Society was held in Albany, May 9th and 10th inst. There was more than the ordinary number of members in attendance, and the proceedings were of unusual interest. As the society is a representative body, made up in great part of delegates from each of the eight subordinate district societies, all of which must duly report to the parent organization, very much of the time is neces-

sarily taken up by business. But there was abundant opportunity for the reading and discussion of several excellent papers, and for the consideration of many things of moment to the profession.

The Board of Censors met on Monday, the 8th, and had concluded their examination of candidates for the State diploma and degree, before the opening of the meeting proper. The regular sessions of the Society began in Geological Hall, at ten o'clock, A. M., of Wednesday, the 9th. Dr. L. S. Straw, of Newburg, President, in the chair. The first session was principally devoted to routine business, the reading of statements from the district societies, the reception of new delegates, and reports of committees. Dr. Charles Miller, of New York, and Dr. LeGrand Ames, of Albany, were elected permanent members. The President read the annual address, which was referred to a special committee. A committee was also appointed to report resolutions expressive of the sorrow of the members over the death of Dr. Marshall H. Webb, an honorary member. The report of the Treasurer showed a balance of moneys on hand of nearly a thousand dollars; rather an unusual exhibit for such societies.

Dr. N. W. Kingsley, Chairman of the Board of Censors, presented the report from that body. At the meeting held the day previous all the censors were present, and nine candidates for the diploma and degree of the society were examined. Of this number three had successfully passed the ordeal; namely, J. Howard Reed, of New York, John E. Taggart, of Westport, and W. C. Hayes, of Buffalo.

The afternoon session was chiefly devoted to the reading of papers. It was opened by Prof. Wm. Hailes, Jr., of Albany, who, by request of the society, presented a series of very beautiful histological preparations for the microscope. Prof. Hailes has made like exhibitions at previous meetings, and has always been warmly received, while his microscopical objects have received unstinted commendation.

Dr. S. B. Palmer, of Syracuse, read a thoughtful paper on "Professional Attainments and Popular Needs," and he was followed by Dr. A. P. Southwick, of Buffalo, whose subject was

"Cleft Palate." The discussion of these papers occupied the time until the hour for adjournment.

At the evening session three papers were read: "Longitudinal Grooves in Teeth," by C. E. Francis, of New York, "Certain Microscopical Elements in Pulpless and Gum-Denuded Teeth," by J. Edward Line, of Rochester, and "Disease of the Antrum," by Frank Abbott, of New York.

At the opening of the morning session of Thursday, Dr. C. F. W. Bodecker and Dr. N. W. Kingsley, of New York, related very interesting incidents of office practice, after which Dr. W. H. Atkinson presented a paper upon "Disease."

"Artificial Crowns" was the next subject, and Dr. N. W. Kingsley opened the discussion by describing crowns of various kinds which he had been in the habit of using. He was followed by Dr. W. Storer How, of Philadelphia, and the discussion soon became general.

The only paper presented for the Whitney memorial prize was one upon "The Extraction of Deciduous Teeth," by Dr. N. W. Kingsley. The committee recommended that although there was no competition, yet in accordance with established precedent the prize of thirty dollars be awarded the author. The paper was not read.

Dr. C. A. Woodward, of New York, C. W. Harvey, of Brooklyn, and J. Edward Line, of Rochester, were elected permanent members.

At the annual election for officers the following were chosen:

President—L. S. Straw, of Newburg.

Vice President—Wm. Jarvie, Jr., of Brooklyn.

Secretary—J. Edward Line, of Rochester.

Treasurer—H. G. Mirick, of Brooklyn.

Correspondent—W. H. Atkinson, of New York.

CENSORS.

1st dist.—N. W. Kingsley, New York.

2d dist.—Wm. Jarvie, Jr., Brooklyn.

3d dist.—S. D. French, Troy.

4th dist.—W. H. Colgrove, Johnstown.

5th dist.—S. B. Palmer, Syracuse.

6th dist.—A. M. Holmes, Morrisville.

7th dist.—Frank French, Rochester.

8th dist.—A. P. Southwick, Buffalo.

After the election of officers was completed, the society adjourned.

We regret exceedingly that we can do no more than to present such a meagre and unsatisfactory report of so important a meeting as that of the dentists of the Empire State. But the arrangements for the publication of the papers and discussions have heretofore been of such a character as to forbid their use by the journals of the profession, while the transactions were so late in making their appearance that it was "stale matter" before it could be presented, and hence we had made no arrangements for a full report. We hope that a different condition of affairs will prevail in the future, and that we may yet be enabled to lay before our readers some of the very excellent papers read at the meeting.

HEMORRHAGE AFTER TOOTH EXTRACTION.

G. WOERNER.

It seems that a solution of chloride of iron, to stop dangerous hemorrhage after the extraction of teeth, is regarded with most favor. Indeed, its application is almost always successful, and I may remark, in passing, that an addition of chloride of sodium will make the blood coagulum more solid ; the mixture should be four parts of fluid chloride of iron, two parts of chloride of sodium, and four parts of distilled water.

Such a solution can also be used internally, ten drops in a glass of water, three times daily ; but as I once failed in its application, I would advise my colleagues to use nitrate of silver, which deserves the preference in every respect. Hemorrhages from flabby, diseased gums, from laceration of the gums, etc.,

can almost immediately be stopped by a good strong cauterization. In cases of hemorrhage from the cavities of the gums, a small piece of nitrate of silver is introduced into the bottom of the cavity, covered with a tampon of cotton, or something similar, and the whole is kept in place by a small clamp, made with very little trouble, out of a good strong watch spring.

If still at hand, the extracted tooth will form a better plug than anything else, if again pressed into the cavity of the gum. The iron cautery with succeeding tamponing, has often been used as the last resource, but in the past, more than at present. No dentist should leave his patient in such case until the hemorrhage is stopped, and then only after very careful instructions, for the danger is not, by any means, over in two or three days. Cases are known where hemorrhage and death by *æmia* occurred after eleven days.

But, aside from the severe hemorrhages, danger may be lurking even in common cases. We often find that weak and delicate persons faint, even during very easy tooth extractions. If we allow the head of the patient to fall back, the blood, saliva, and any possible splinters may accumulate in the posterior part of the buccal cavity. If the patient revives with yawning and labored respiration, the epiglottis raises and the contents of the mouth are drawn into the trachea, which may, in extreme cases, result in suffocation. Care should therefore be taken to give the fainting patient a position which insures a lateral or forward inclination of the head, and to keep the mouth open for a free flow of blood and saliva, and an unobstructed access of air. In conclusion, allow me to call attention to the importance of thoroughly clean instruments, as many evil accidents can be traced to carelessness in this respect.—(*Die Zahntechnische Reform.*)

GOLD FOIL IN GERMANY.

It is only a few years since, that the gold used for filling teeth was almost entirely the products of American and English

makers, and with the exception of Nedden's crystal gold, no German preparation found a ready market. It is, therefore, a pleasing sign of growing interest that Germany, within a short time, has commenced to compete with the American and English manufacturers. Mr. Wolrab, of Bremen, manufactures at present a gold filling which is not only considerable cheaper than the foreign products, but, as far as its quality is concerned, will also bear a very favorable comparison. At the meeting of the German dentists at Bremen, this gold was very favorably commented on, and an American, Prof. Truman, said that, according to his own experience, Mr. Wolrab's gold was equal to the best of American preparations.—OTTO MAAS, in "*Die Zahntechnische Reform.*"

EXPENSIVE TREATMENT.

The son of the Grand Duke of one of the North German States, made an engagement for himself and wife with a dentist of his small capital, making the express condition that only new instruments should be used. The surprise of the aristocratic patient knew no limit, when, after an insignificant operation, he was presented with a bill of \$750. A celebrated dentist of Berlin, to whom the bill was referred, reported that, in consideration of the requested new instruments, the charges were entirely within reasonable limits, and the young prince paid. But it is said that he has taken an oath to abstain from the luxury of toothache, which was too expensive, even for the income of the son of a Grand Duke.—*Zahntechnische Reform.*

Popular Science Department.

LIGHT AND HEAT.

The amount of light given out by a gas flame depends upon the temperature to which the particles of solid carbon in the flame are raised, and Dr. Tyndall has shown that of the radiant

energy set up in such a flame, only the one-twenty-fifth part is luminous ; the hot products of combustion carry off at least four times as much energy as is radiated, so that not more than one-hundredth part of the heat evolved in combustion is converted into light.—*Sci. Amer.*

TIDES IN INLAND WATERS.—It is found by the survey of the Great Lakes that there is a slight tide in them, but not of sufficient extent to be noticeable without special care; the amount of rise and fall not exceeding two inches.

ABSORPTION OF WATER BY PLANTS.—An enormous quantity of water passes through the roots of plants. An English experimenter has ascertained that for every pound of mineral matter assimilated by a plant, an average of 2,000 pounds of water is absorbed. At the French Agricultural Observatory of Montsouris it was found that in rich soil, 727 pounds of water passed through the roots of wheat plants for every pound of grain produced; while in a very poor soil, 2693 pounds passed through the wheat roots for every pound of grain.

RESTORING COLOR IN WOOLEN OR COTTON FABRICS.—When color on a fabric has been accidentally or otherwise destroyed by acid, ammonia is applied to neutralize the same, after which an application of chloroform will, in almost all cases, restore the original color. The application of ammonia is common but that of chloroform is but little known.

EATING BEFORE SLEEPING.—Man is the only animal that can be taught to sleep quietly on an empty stomach. The brute creation resent all efforts to coax them to such a violation of the laws of nature. The lion roars in the forest until he has found his prey, and when he has devoured it he sleeps over until he needs another meal. The horse will paw all night in the stable, and the pig will squeal in the pen, refusing all rest or sleep until they are fed. The animals which chew the cud have their own provision for a late meal just before dropping off to their nightly slumbers.

Man can train himself to the habit of sleeping without a preceding meal, but only after long years of practice. As he comes into the world, nature is too strong for him, and he must be fed before he will sleep. A child's stomach is small, and when perfectly filled, if no sickness disturbs it, sleep follows naturally and inevitably. As digestion goes on the stomach begins to empty. A single fold in it makes the little sleeper restless ; two will wake it ; and if it is hushed again to repose, the nap is short. Paregoric or other narcotic may close its eyes again, but without either food or some stupefying drug it will not sleep, no matter how healthy it may be. Not even an angel who learned the art of minstrelsy in a celestial choir can sing a baby to sleep upon an empty stomach. We use the oft-quoted illustration, "sleeping as sweetly as an infant," because this slumber of a child follows immediately after its stomach is completely filled with wholesome food. The sleep which comes to adults long after partaking of food, and when the stomach is nearly or quite empty, is not after the type of infantile repose. There is all the difference in the world between the sleep of refreshment and the sleep of exhaustion.

To sleep well, the blood that swells the veins in the head during our busy hours must flow back, leaving a greatly diminished volume behind the brow that lately throbbed with such vehemence. To digest well, this blood is needed at the stomach and nearer the fountain of life. It is a fact, established beyond the possibility of contradiction, that sleep aids this digestion, and that the process of digestion is conducive to refreshing sleep. It needs no argument to convince us of this mutual relation. The drowsiness which always follows the well-ordered meal is itself a testimony of nature to this inter-dependence.

SOLDERING COARSE METALS.—The following method of soldering without the use of a soldering iron is given in the *Techniker* :

The parts to be joined are made to fit accurately, either by filing or on a lathe. The surfaces are moistened with the solder-

ing fluid, a smooth piece of tinfoil laid on, and the pieces pressed together and tightly wired. The article is then heated over the fire by means of a lamp until the tinfoil melts. In this way two pieces of brass can be soldered together so nicely that the joint can scarcely be found.

With good soft solder, nearly all kinds of soldering can be done over a lamp without the use of a "bit." If several pieces have to be soldered on the same piece, it is well to use solder of unlike fusibility. If the first piece is soldered with fine solder, composed of two parts of lead, one of tin, and two of bismuth, there is no danger of its melting when another place near it is soldered with bismuth solder, made of four parts of lead, four of tin, and one of bismuth, for their melting points differ so much that the former will not melt when the latter does. Many solders do not form any malleable compounds.

In soldering together brass, copper, or iron, hard solder must be employed; for example, a solder made of equal parts of brass and silver. For iron, copper, or brass of high melting point, a good solder is obtained by rolling a silver coin out thin; for it furnishes a tenacious compound, and one that is not too expensive, since silver stretches out well. Borax is the best flux for hard soldering. It dissolves the oxides which form on the surface of the metal, and protects it from further oxidation, so that solder comes into actual contact with the surfaces of the metal. For soft soldering, the well-known fluid, made by saturating equal parts of water and hydro-chloric acid with zinc, is to be used. In using common solder rosin is the cheapest and best flux. It also has this advantage, that it does not rust the article that it is used on.

ANOTHER TEST FOR ALBUMEN IN URINE.—Dr. W. Roberts states in the *Lancet* that a saturated solution of salt in a fluid composed of one ounce of dilute sulphuric, nitric, or hydro-chloric acid, with a pint of water, filtered, provides a test for albumen in urine as delicate as nitric acid. It should be applied in the same way, by trickling the solution down the sides of a test-tube containing the urine, held in a slanting direction.

The brine solution should be added in quantity equal to the urine, and if albumen be present it will be visible at the point of contact of the two liquids. This test is advantageous in the case of high-colored urines, which are made darker by nitric acid, and the brine solution is also less dangerous to carry in a pocket-case than the nitric acid.

ARTIFICIAL INCUBATION FOR INFANTS.—Dr. Tavernier, physician to a foundling hospital at Paris, has tried an experiment with a view to lessen the enormous mortality among the infants under his care. A prematurely-born infant of miserable physique, was made the subject of the experiment. It was placed in an incubator, made on the model of the artificial incubators for chickens. It was a box covered with a glass slide, furnished with a soft woollen bed, and kept at a temperature of 86° by suitable means. The child was placed in this and left in the dark with a nursing-bottle. On the second day it ceased to cry and sank into a deep sleep, which continued during the 60 days it remained in the incubator, the only wakeful intervals being when it was taking nourishment. At the end of the time it was as well grown and strong as a child a year old. Another experiment was tried, and was equally successful. The system was thus applied with all convenient speed to the 360 infants in the hospital. Their average weight was then 16 lbs.; average age, eight months, three days. Only one died from congenital hydrocephalus, another was reclaimed. The rest remained in the incubator for six months. The average weight was then 24 lbs. An ordinary observer would have said that the youngest was at least three years old. All learned to walk within a week after leaving the incubator, and most have since learned to talk.—*Journal of Chemistry*.

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NEW REMEDIES.

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Respectfully solicit the attention of practitioners of medicine to their preparations of the following drugs, premising their statement of the claims made for them by mention of the fact that such claims are in each instance the legitimate deductions from reports in their possession (and copies of which will be gladly furnished gratis on application) of results following the use of the drugs in the practice of competent and conscientious physicians:

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Although this indigenous plant has been before the profession for several years, it is to be feared that it is not as fully appreciated as its inherent merits demand. The cause of this is the fact that it has not been accorded the thorough trial to which an agent possessing the properties claimed for it is entitled. It is a demulcent of superior quality, and while exercising a favorable influence over mucous membranes wherever situated, has a peculiar influence over that of the respiratory passages. The testimony in support of this statement is too voluminous for introduction at this place, but will be cheerfully furnished on application to us.

We prepare a fluid and a solid extract.

DOSE—FLUID EXTRACT YERBA SANTA (P., D. & CO.), 3 ss to 3 j.
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QUEBRACHO

(ASPIDOSFERMA QUEBRACHO).

Although of comparatively recent introduction, Quebracho comes to us so indorsed by the results of physiological and clinical experience as to place it at once in a place among the more reliable drugs. These experiments have been copious and convincing, fixing quebracho as an agent possessing a peculiar property in relieving dyspnoea due to whatever cause, the cyanotic hue of lips and surface disappearing under its use and the distress of the patient being distinctly ameliorated.

Quebracho supplies in its marked properties a pressing want, especially in the treatment of pneumonia or other affections of the lungs attended by dyspnoea. In such self-limited affections the desideratum is to sustain the patient until the disease shall have run its course, and many have succumbed because of the want of an agent which should do what quebracho is claimed to do. That it is a remedy of indispensable value in acute pulmonary inflammations is attested by abundance of testimony in our possession, and which will be supplied gratuitously, collated from both private and hospital practice.

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This plant, indigenous to Chili, was introduced to the English profession by Dr. William Murrell, the famous English therapeutist and collaborator of Ringer, as a remedy for the "Winter Cough" of elderly people. Dr. Murrell's favorable reports have been indorsed by the experience of many practitioners of this country, and Cheken is entitled to a prominent place on the list of remedies for chronic bronchial affections of an inflammatory or catarrhal nature. Dr. Dessauer, of the German Hospital of Valparaiso, speaks in high terms of it as a remedy also when the discharge is of a purulent nature. It is a valuable adjuvant in cough mixtures, its influence being alterative and demulcent. We solicit for this new drug a thorough trial in the catarrhal affections peculiar to this season, confident as we are that it will prove a valuable expectorant.

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THE
Independent Practitioner.

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JUNE, 1883.

No. 6.

Original Communications.

FURTHER CONTRIBUTIONS ON THE SUBJECT OF DENTAL
CARIES.

BY W. D. MILLER, BERLIN.

I. CARIES OF ENAMEL.

Up to the present time, investigations concerning the parasitic nature of dental caries have been confined chiefly, we may almost say exclusively, to a study of its phenomena as seen in connection with carious dentine; but as at least nine-tenths of all the cases of caries which come under our treatment necessarily begin with the enamel, the value of careful observations on the caries of that tissue cannot well be overestimated.

The difficulties attending the preparation of slides of carious enamel are vastly greater than in those of dentine, because in the former the tissue becomes so frail that it falls to pieces during the process of grinding, while the method of treating carious enamel with acids and making razor sections, would hardly be adapted to a study either of the chemical or parasitical character of the carious process.

I have nevertheless succeeded in obtaining one hundred and fifty microscopic preparations of carious enamel, from over one hundred and twenty-five different teeth. These sections were all

stained with some aniline dye, and mounted in Canada balsam. Neither enamel nor dentine in a healthy state can, (with the exception mentioned under V) be stained with any of the aniline dyes of which I have made use. On the other hand, both enamel and dentine which have been acted upon by acids, may be readily colored.

This fact often furnishes a very valuable, and sometimes the only indication as to whether any change in the structure or composition of the enamel has taken place.

In the beginning of the carious process we find on the surface of the enamel a slight depression, or concavity, which may or may not contain *Leptothrix buccalis* in considerable masses. The border of the enamel will be slightly tinted with the coloring matter used in staining; beyond this, to a depth of perhaps fifty micrometers, the enamel will almost always be very perceptibly discolored, as though acted upon by some agent producing effects undistinguishable from those of acids.

In such preparations we must search a long while before we find anything which in any degree justifies the conclusion that the caries is entirely and solely dependent upon the presence of fungi.

In one case, where a considerable portion of the whole periphery seemed to be more or less carious, appearing in various places uneven, and discolored by the dye which had been absorbed, I saw some of the spaces between the enamel prisms apparently distended and filled with something which looked like micrococci. As this something had not been stained at all, the case was rather doubtful.

In another instance, where the enamel was discolored to the depth of about one hundred and fifty micrometers in such a manner as to leave no doubt that a change had taken place, I saw very delicate funnel-shaped excavations extending into the enamel for about ten to twenty micrometers, and apparently containing micrococci. With one or two other exceptions of like nature I have not found in any of my preparations of this class a single instance where even the interstices of the enamel prisms had been penetrated by micro-organisms.

In a second class of preparations, we find the enamel entirely destroyed for a certain space, and the caries encroaching upon the dentine.

(Figure 1.)

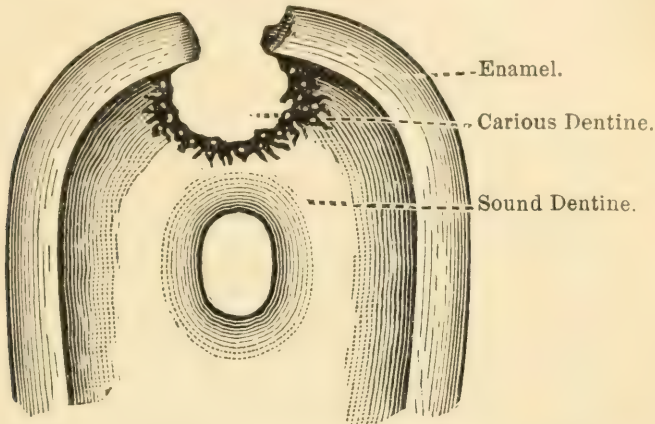


Figure 1 may serve to illustrate the manner in which the carious tissue is distributed in such cases.

As soon as the enamel is broken through, the caries extends rapidly in a direction at right angles to the dentinal tubules, as well as parallel with them. Here is a very marked distinction between the action of the agent which produces the softening of the dentine and that of the fungi; for while the former appears to advance with about the same rapidity in all directions, the latter travel very slowly in any course excepting one parallel with the tubules, since they can escape from one tubule to another only through the very narrow and tortuous branches of the tubuli.

This conclusion is fully confirmed by an examination of instances like that cited above, where that part of the softened dentine which is still protected by enamel will be found to contain very few fungi, or none at all.

The walls of enamel on each side of the cavity frequently show a marked discoloration (brownish yellow) extending to a depth varying from a few micrometers to one-fourth of a millimeter; in other cases an equally broad zone is seen to be distinctly stained by the dye used in preparing the specimen. In such instances the paucity of the micro-organisms is often so great that one must search very carefully to find even a few lying along the margin, or in the fis-

tures of the enamel. Within the enamel itself they do not appear to be present, and a regular advance of the invading organisms beyond or up to the boundary between normal and diseased enamel, seems to be entirely out of the question.

As one result of my study of caries of the enamel, I have been led to the belief that after the enamel has once been broken through and a cavity of decay formed, the destruction of the remaining walls of enamel takes place chiefly from within outwards, rather than from without inwards.

This, which we may call the internal caries of enamel, is somewhat less difficult of examination than the caries of the external surface.

Take for example a molar tooth, extensively decayed on the grinding surface; slightly enlarge the opening in the enamel and it will be found that the bond of union between dentine and enamel has in some places been ruptured. Remove as much as possible of the softened dentine with one stroke of a spoon-shaped excavator, and the surface of the enamel will, to a greater or less extent (depending upon how far the caries has progressed), be seen to be covered with a layer of white, amorphous powder, exactly resembling, both macro- and microscopically, that which is found on the surface of a piece of enamel which has been for some time immersed in acid, or in a mixture of saliva and bread.

Examined microscopically it will be found to consist of enamel prisms either single or in bundles, of from ten to one hundred and fifty micrometres in length. This powder is sometimes half a millimeter in thickness. Remove the surface of the outer layer, repeatedly purifying the instrument by fire and using the most scrupulous care to avoid bringing any kind of impurity in contact with the deeper parts; take then a portion of the powder lying on the border of the healthy enamel, stain and mount it in Canada balsam and you will be astonished to find that there is not only an almost complete absence of micro-organisms where you might have expected to see them in great numbers, but that the enamel also is entirely free from any signs of infection, either between or within the prisms.

In one preparation, by dilligently searching for three minutes, I found one bacillus and two bacteria; in another I hunted for five minutes before I found a single organism. Microscopic sections ground from enamel decaying on its inner surface, frequently show by the readiness with which they take up the dye, that the enamel, to the extent of one-half *m. m.* or more, has undergone a softening process. But we look in vain for a corresponding invasion of the fungi. The dental fibrils on entering the enamel often become very much expanded, forming oval or spindle-shaped excavations in the substance of the enamel. If the caries of enamel proceeds from within, these cavities readily become filled with fungi, and the zealous seeker after these organisms would no doubt at once jump to the conclusion that they had eaten a hole in the enamel.

I have one preparation of carious enamel in which a very limited number of micrococci appear to have worked their way between the enamel prisms along the course of the enamel fibres, a fact which, however, signifies very little, as I have shown in a previous number of this journal. As a summing up of what has been said, I will state that from a careful study of over one hundred and fifty preparations I am driven to the conclusion that there is as yet no sufficient ground for the assumption that micro-organisms play any more than an unimportant part in the caries of enamel.

II. CARIES OF CEMENT.

The comparative infrequency of caries of cement compared with that of dentine or enamel, the consequent difficulty of obtaining suitable material for examination, the fact that normal as well as diseased cement becomes to some extent tinged by the aniline dyes, and the absence of any characteristic form in which caries of cement presents itself, combine to make this tissue far more difficult of examination than either the enamel or dentine.

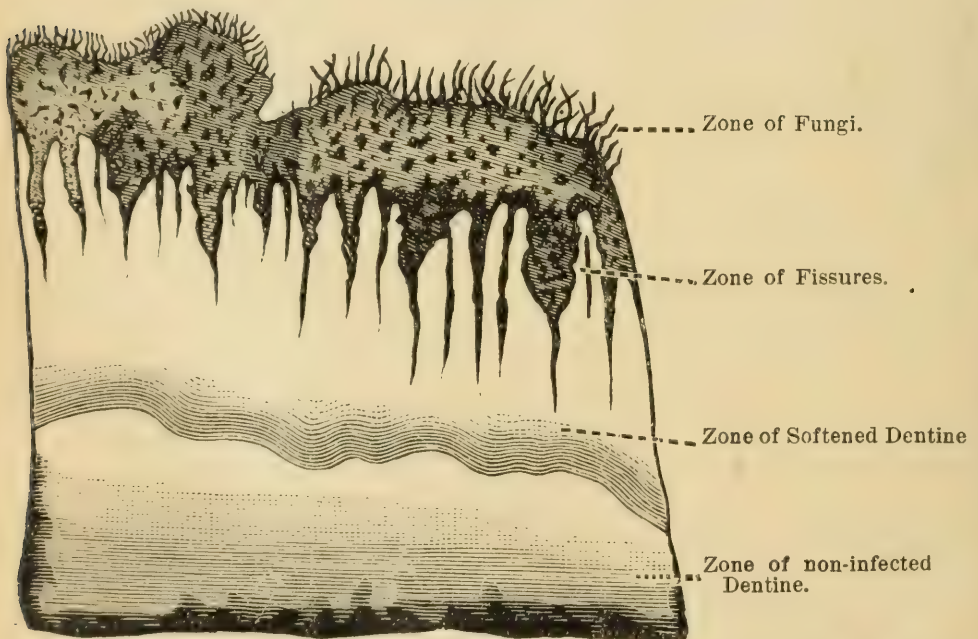
Although I have more than thirty specimens of caries cementum, I have not been able to arrive at an opinion sufficiently conclusive for presentation here. I therefore leave this subject for the present, with the remark that I am not now prepared to present any proofs in favor of a purely parasitic caries of cement.

III. CARIES OF DENTINE AT NECK OF TOOTH.

The outermost layer of dentine at the neck of the tooth is either normally without tubuli, or they are so fine as not to furnish so easy an entrance to micro-organisms as the tubuli of dentine in general. We therefore find in this region caries manifesting itself in a form somewhat different from that presented by dentine in other positions. It is, moreover, here alone that we may readily obtain specimens of caries of dentine in its incipient stages.

A specimen of this kind, examined under the microscope, usually shows on the outer border a zone consisting of indistinguishable masses of fungi, from which project numerous threads of *Leptothrix buccalis*. Below this comes a zone of infected dentine, which is seen to be traversed by numerous triangular cracks or fissures, having their bases at the periphery, and apices at some point beneath the surface of the dentine; in other words, the section appears as though it had been notched by a triangular file. See Figure 2.

(Figure 2.)



These notches are almost invariably found to be filled with fungi,

chiefly micrococci. Whether these fissures were produced by the fungi, or whether they resulted from a contraction of the outer layers of the softened dentine, or from some other cause, and afterwards became filled with the fungi, remains to be determined.

Below this zone of what we may call infected dentine, comes a zone of softened, non-infected dentine; sometimes this is of considerable depth, while in other instances the fissures appear to extend almost if not quite up to the boundary of the normal dentine. In some cases the transition from the softened to the normal dentine is so gradual that it is very difficult to say just where the boundary lies. In a great many, however, it is so abrupt that one may mark the limit with the greatest ease, a zone of deeply stained dentine being immediately followed by one of perfectly colorless tissue, so that one may draw a curved line through the preparation and say: on one side is normal, on the other softened dentine.

This applies not only to that at the neck of a tooth, but to dentine in general, and is a fact hard to reconcile with the germ theory of caries, since in all the preparations which I have examined with reference to this question I have met with very few cases where the boundary line between the infected and non-infected parts is not of the most tortuous and angular nature conceivable.

IV. CARIES OF DENTINE.

To what I have already written upon this subject in the January number of the *Dental Cosmos* and in the May number of the *INDEPENDENT PRACTITIONER*, the following may be added: I have made some hundreds of sections of carious dentine, and over two hundred I have treated with various reagents and mounted in Canada balsam. These preparations (unless made from dentine in the last stage of decay) invariably show tracts varying from a small fraction up to one-half of the whole section, which are almost, and sometimes completely, free from micro-organisms. Viewed in this light alone, the idea that softening of the dentine is produced by fungi penetrating the normal dentine and first

consuming the organic part, appears to be doubly wrong ; first, because the fungi which should have consumed the organic portion are not there, and second, because the organic matter which should have been consumed is still present, or at most, has suffered less than the inorganic portion.

The same fact may be exemplified in the following manner: Thoroughly cleanse the cavity of a freshly extracted carious tooth in which the pulp is not exposed, remove the softened dentine, repeatedly changing the instrument used for one purified in the flame of a spirit lamp or bunsen-burner, until you have come to the boundary between soft and normal dentine. Then with a spoon-shaped excavator remove a quantity of fine shavings or scrapings of this dentine just on the border, stain and mount in Canada balsam. If the operation has been carefully and cleanly performed but very seldom will any of these shavings contain fungi.

A question in practice is suggested by the following case: A patient comes with a tooth containing a large amalgam or gold filling, made five, ten or more years ago. The filling was inserted over a living pulp, which afterward died, or as frequently happens in Germany, over a dead pulp. An abscess followed and a fistula was formed which has been active at intervals throughout the whole period of ten or more years. During all this time there was probably not a moment when a microscopic examination of the contents of the root-canals would not have revealed great numbers of fungi under conditions of moisture and temperature very favorable to their development. When, therefore, we remove the filling and find no signs of caries in the root, we wonder what those organisms have been doing all these years if, as it is asserted, they are capable of devastating whole rows of teeth, and undermining the best made fillings in the space of a few months. Evidently there is a limit, and we may say with confidence that not all fungi are sufficient to destroy teeth. This is not an imaginary case, but one which I have met with time and again, and one which I think every practitioner must now and then encounter.

V. PARASITES IN NON-CARIOUS TEETH.

Under this heading I wish to call attention to certain forms met

with in the tubuli of perfectly healthy dentine, which may lead us to diagnose fungi when there may be none present. Examining a section of a molar tooth in which the cavity of decay was separated from the pulp by a layer of dentine one-half a c. m. thick, I found on the side of the pulp cavity farthest from the decay, within the dentinal tubuli, something which presented every appearance of micrococci, bacteria and bacilli. Had these tubules been on the side of the pulp cavity presenting the decay, I should not have hesitated a moment to put them down as such. Under higher powers, however, (Zeiss 1-18 oil), the micrococci appeared to have an uneven, irregular contour, while the bacteria and bacilli instead of having roundish ends, sometimes appeared pointed, or as if cut across diagonally, and in some instances I saw shapes which did not correspond with any form of fungus that I have ever seen. Figure 3 roughly illustrates some of these forms.

(Figure 3.)



The tooth from which the section was taken contained a living, healthy pulp. The part of the section containing the fungus-like forms was slightly stained by the dye, the intensity of the color being greatest near the pulp cavity, and extending in some places quite to the periphery of the dentine.

Since that time, in nearly every section of sound dentine, from perfectly sound teeth which I have examined with reference to this question, I have found similar figures, especially the coccus-like

form. If these are really fungi, we need no farther proof of their harmlessness than the fact that such sections show no evidence of caries whatever. If, on the other hand, they are not fungi, we are in continual danger of setting down as such, things which are of an entirely different nature.

H. Morgenstern, dentist, of Berlin, described at the last meeting of the Central Verein deutscher Zahnärzte, certain forms which he had found in senile teeth, or such as had become loose from absorption of the alveolus. He believes that he has found either fungi or algæ in such teeth. Whether these are the same as the forms above described, I cannot say. It is significant that he finds them in that class of teeth which is least of all subject to caries.

The case teaches us that it may not be allowable to set down as fungus every little round or oblong thing which we see in a slide.

The points in this communication to which particular attention is directed may be summed up as follows:

(1.) Aniline dyes react upon enamel which is attacked by caries in the same manner as upon enamel softened by acid. A participation of fungi in the first stage of the carious process is not observable, although a slight invasion of the diseased enamel appears in some instances to have taken place.

(2.) Caries of enamel, advancing from the inner surface, reduces the tissue to a fine white powder; sections of such enamel usually show micro-organisms only in the parts where the tissue is completely broken down, while with a proper amount of cleanliness, considerable quantities of the powder may be obtained which is completely free from fungi.

(3.) Softened dentine taken from the surface of the normal dentine appears as a rule quite free from infection.

(4.) The softening of the dentine advances with almost equal rapidity in all directions, while the invasion of fungi goes on much more rapidly in the direction of the canaliculi.

(5.) The boundary between the normal and softened portions of dentine is often perfectly distinct and sharp; it is impossible, on the other hand, to draw the boundary line between the infected and non-infected portions.

(6). The mere presence in the canaliculi of something which resembles, or even actually is, a fungus, is not proof that the thing in question is a cause of caries.

In conclusion, it may be said that the germ theory as tested by the microscope, apparently falls short of furnishing complete explanation of the phenomena of dental caries; that fungi, even when reinforced by acids, do not in all cases prove themselves sufficient for tooth disorganization.

There appears, in many cases at least, to be some other element at work. Investigations in the direction indicated by Prof. Pierce in the *Dental Cosmos* for March, or by Prof. Abbott, ought to throw some light upon this point.

DISEASE.

BY W. H. ATKINSON, M. D., D. D. S.

READ BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK, AT
ALBANY, MAY 10, 1883.

Ease and *dis*-ease are but effects of nutrient movements that may be perceived or unperceived by the body under their dominion, in accord with the attention or inattention of consciousness of the body. Ease (health) is a regulated interchange of activities in molecules in accord with the layout or type of organs. *Dis*-ease is disturbance of this order of inter-blending of mass and energy. Coalescence of these, mass and energy, is the process by which variety in conformation of body is produced and maintained. The degrees of satisfaction of these blendings known as ripeness, or ripening, present us with nebulæ, suns, planets and inhabitants of planets.

To get a complete and exhaustive conception of what disease is, it will be necessary therefore to describe in some way the formation and behavior of all bodies subject to disease or imperfect nutrient activity.

1. The radiance of solar fulness in filling cosmic void, produces planets and inhabitants of planets by a procession of impacts of energy exemplified in the production and feeding (maintaining) of individual bodies.

2. Any disturbances of the succession of impacts minifies or prevents the formation and feeding of these bodies.

3. When bodies or parts of bodies are thus minified, they are weak, and hence they are unable to operate the changes denominated functional activities of molecular, corpuscular, tissual, organic, systemic, or conscious manifestation of character in their completeness. This minification of functional power lays the foundation of unrest, dissatisfaction of demand for energy, which is the condition known as disease.

The way in which this comes about is so occult and complicated as to render it difficult of apprehension and explanation. Radiance penetrating cosmic void produces molecular-mass, from which arise by continuity of the alternate on-going and arrest of radiant impact, the various bodies which appear in the heavens. These consist of solar systems made up of suns, planets and inhabitants of planets.

Radiance is the power, and mass the matrix by which worlds are produced. The process of production may be said to consist of interpenetration, intussusception, invagination and coalescence of these dynamic and static aspects of body and being, in accord to type in molecular, corpuscular, tissual, organic, systemic and conscious manifestation.

It is said that the debris of minerals makes vegetables a possibility, and that the disintegration of these makes the basis of the animal kingdom.

In view of this statement, may we not legitimately accept the saying that in all forms of feeders, the debris of each category becomes the food of the next below it in the organization of the inhabitants of this and other planets? Acceptance of affete, and rejection of effete or excessive portions of food constituting the process of nutrition, must be regular and rythmical to be phys-

iological. When irregular by deficiency or perturbation of the nutrient currents, it becomes pathological—*disease*.

Is disease inherited?

The possibility of both *ease* (the study of which is physiology) or *dis-ease* (the study of which is pathology) being transmitted from antecedent bodies has been demonstrated.

Man, as the culmination of the manifoldness and simplicity of cosmic and planetary function, is the embodiment of psychic and bodily manifestation of FUNCTION, or demand and supply in the production and maintenance of suns and systems in space, by solar fulness penetrating cosmic void. The begetting, gestating, (ripening) and disrupting of worlds, is represented by the generation and career of inhabitants of planets, at the head of which the human race is conspicuous.

The revelation and ripening of the formulæ of science, speculative and exact, have been obtained through mutations in mind and matter, being grasped by consciousness in multiplied observations. Time and strength would fail us were we to attempt justification of these statements by representing the mutations that mark the history of the development of the sciences.

If science be the "record of the regulated observation of effects," as is so persistently reiterated by materialists, we are bound to ask what "observation" consists of? First, we must have the power of perception; second, this must be so developed as to enable us to correlate observations in understandable series, so as to reveal the principles laws and methods of procedure to consciousness.

As mathematics is independent of bodily or material entanglement by belonging exclusively to the domain of consciousness or mind, we can only bring it to bear upon physics as the means of discovery and correction of the formulæ of science in astronomy, geography and physiology.

A close reading of the record will show this in considering the old and new styles of calculating time. In the discovery of gravitation, the precession of the equinoxes and of planets under the guidance of the imperfect astronomy (astrology) of the ancients,

the divisions of time were insufficient to so calculate the seasons of the year as to have them occur in the same months.

By the advent of Copernicus this was corrected, and the new style of measurement of time was promulgated, which still holds good. In pursuit of the explanation of the precession of the equinoxes, the shape of the earth was re-examined as to a possible causative relation to retarded diurnal motion.

It turns out that the equatorial diameter of the globe exceeds that of the polar diameter sufficiently to account for the difference between the old and new styles of estimating, by the difference of the sun's attraction between sphericity of the earth in old style, and an oblate form in new style. The discovery of Neptune was the result of calculations based upon observations of perturbation in the orbits of other planets.

Thus astronomy and geography have progressed and are advancing to the higher and better pronouncement, as well as physiology, psychology and hygiene.

Coalescence (or flowing together) takes place in ethers, gases and liquids or fluids; therefore solids and semi-solids must be melted or dissolved to reduce them to a state capable of intimate admixture or blending. Incomplete coalescence of primates precedes imperfect embodiment of types in molecules, and their massing in cosmic dust—nebula, sun, star, planet, and occupant of planet—and is inception of disease in crystal, cell, corpuscle, organ, and system.

Admixture is aggregation; blending is such a change of molecular constitution as to render heterogeneous masses homogeneous in character. A condition known as temperature is a prominent factor in the conversion of solids and semi-solids into liquids, gases, ethers and radiants; and it must be taken into account in any investigations of healthful or fractional conditions of functioning bodies.

Completeness or wholeness of function is health, or wholeth; while incompleteness of performance of process fractionalizes its career, which is minified function, or *disease*. The inception of dis-

ease may be said to depend upon perturbation in temperature of body, known as taking cold—"catching cold."

Parallelism of all the stages of the processes of feeding affords normal blood, out of which the tissues are formed and nourished under the fulfillment of the law of demand and supply in every form of functioning body, large or small.

Deficiency (hunger) calls for sufficiency, which is attained by exercise of the whole range of movements, viz: 1, prehension; 2, commutation (mastication); 3, insalivation; 4, deglutition; 5, chymification; 6, emulsification of carbo-hydrates; 7, chylicification (precipitation of effete or unchurned portions of food mass); 8, absorption into the blood tract through the chyloferous vessels; and 9, vivification by admixture of oxygen in the respiratory tracts. When this is effected in full measure we have pure blood out of which to sustain the elements of the functioning machinery in health in formed bodies; and producing these elements in forming bodies by converting blood into protoplasm and this into embryonal corpuscles, and these into the tissues and organs of functioning systems, by aggregation, according to typical requirement in the construction and nourishment or support of the parts and the entire system. Let us state, then, that from bathybius (protoplasm) to blood and breath, and from breath to blood and protoplasm (bathybius) we may trace the line of *solar radiancy* as the + (plus) energy that awakens the potencies of atoms and engages them in forming the molecules out of which the proteinaceous compounds are generated that are capable of being metamorphosed into tissues. Let us ask, then, what are the factors of function? And answer by stating, Light is the + (plus) and Atoms the - (minus) cosmic entities, movements in which display to observation cosmic, solar, stellar and planetary systems which are the make-up of the cosmos in the great sense—the universe, as it is called.

Take a complete system of organs at the point of its career known as its beginning; it will be perceived that all the possibilities of function are immanent and emanant in it and its surroundings.

Use of the machinery wears it out by reason of the changes wrought in its parts at their points of contact, under the impact and variety in mode of the energy that operates the functions of the parts and the entire machine. This waste of wear, or loss, must be restored to it by repair of the machine to keep it in working order. This process of repair in functioning bodies is known as feeding; and is operated by a complicated series of preparatory sub-processes of a triple apparatus in respiratory, circulatory and alimentary tracts. These sub-processes operate upon the crude material out of which pabulum is manufactured, from which tissues are fed by appropriation of affete and rejection of effete and excessive portions of pabulum. Appropriation of pabulum is called assimilation, and is only attributed to the vegetable and animal kingdoms in extant physiologies.

This process of appropriation and rejection of portions of pabulum involves fine division and admixture of materials of the food in the crude sense. In the mineral kingdom we would say solution and precipitation were involved in the production of crystals.

In a solution of silicon, precipitation produces *silex*, by crystallization according to a special six-sided type; and *silica* in an amorphous powder.

This immanence of type is always a factor in building and destroying mineral, vegetable and animal bodies.

Mineralistic parts of vegetables constitute their solidity in stalk, fruit and seed.

These elements are carried to place by solution in water through channels of circulation for such fluids.

Water is called the "universal solvent," and the saying finds confirmation in all physiological investigations.

An English experimentalist finds that for every pound of mineral matter assimilated by a plant an average of 2,000 pounds of water is absorbed.

At the French Observatory of Mt. Souris it was found that in rich soil 727 pounds of water passed through the roots of wheat plants for every pound of grain produced; while in a very poor soil

2,693 pounds of water passed through the wheat roots for each pound of grain matured.

The depositing of these solids necessitates a dissipation of the water, which is effected by transpiration, to form the halm, fruit and seed. This is purgation (expurgation) in the vegetable domain.

The lowest form of animals so nearly repeat this mode of appropriation of weak solution of pabulum as to make it difficult to detect the difference in mode of assimilation.

The amœbæ bouche and debouche at the same point of their bodies.

That is, they improvise mouth and anus on the side of their bodies next the thing they wish to devour, and thus eat by closing around the article of food and defecate by unfoldment of the body walls, allowing the unassimilable parts of food to fall away. This is the earliest example of the division of animals, classified as monotremata, thus showing us that vomiting and purging are identical in purpose, viz. : getting rid of debris and excess of food.

Those conditions known as *diseases* are the results of perturbation in the nutrient processes, which results have not been eliminated in time to prevent debility, aberration or death of the elements of tissues. Thus local disease is ever the manifestation of constitutional debility being focalized by local lesions that would be of no account in soundness of blood crisis, i. e., all sorts of fracture heal by first intention, by simple reposition of the divided parts in healthy bodies ; while tubercle, tumor, cancer and infectious diseases hold high carnival in the imperfectly elaborated blood plasm.

To prevent disease, live in accordance with hygienic laws, the principal of which is the intelligent use of general gymnastics, thus washing out all the channels of nutrient activity by vigorous exercise.

For special obstructions resort to special gymnastics, namely, in respiratory tracts by vigorously breathing, in vascular tracts by accelerated circulation, thus hastening secretion and excretion, and in alimentary tracts by vomiting, purging and sweating.

For infectious diseases, neutralize the poison, and for local disease extirpate the abnormal part.

THE PROPOSED COPYRIGHT LAW, AND ITS RELATION TO
MEDICAL AUTHORSHIP.

BY "MEDICUS AMERICANUS."

The question of the relations of American and foreign authors and publishers has again appeared in Congress. Some American authors, headed by Dr. Oliver Wendell Holmes, have petitioned Congress on the subject of the duty upon books printed in foreign countries; and the fact is stated that foreign publishers may reprint American works and, without regard to copyright, and in consequence of the cheapness of foreign labor and materials, may send those works back to this country and put them in the market at prices which will exclude the original publications, and deprive the authors of the royalty upon their works.

The foreign publishers excuse themselves for this injustice to American authors, by retorting that American publishers are equally unjust to the foreign authors in publishing their works without compensation, in the absence of an international copyright law.

That there is ground for complaint on the part of authors, both American and foreign, for this state of things, there can be no question. To the American authors of literary works, whether professional or not, there is a double wrong, or at least a double disadvantage. They suffer from the competition of the publication of similar foreign works in this country at less prices, because nothing is paid the authors, unless it be a pittance as a gratuity, and they are liable to have their works reprinted abroad and sold in this country, crowding the original copyrighted works out of the market.

It is, however, claimed that this acknowledged injustice to authors is compensated for (as if anything could compensate for injustice) by the advantage to the public in furnishing cheap books. This alleged advantage to our profession, besides the matter of injustice to a portion of them, is not without very serious drawbacks.

In the first place, by this state of things original research and the production of works requiring elaborate preparation are discour-

aged among us, and our general professional advancement is retarded.

But a much more serious evil arises from the fact that, by the multiplication of foreign works, particularly upon medical diseases, displacing those of original, home production, the profession is educated in views of *treatment* not adapted to the peculiarities of the ordinary diseases of this country, especially those prevailing in the rural districts.

While the facts and principles of physical, chemical, physiological, and to a large extent, pathological science are the same everywhere, all know that particular diseases and their indications for treatment are greatly modified by the previous history, the surroundings, and the peculiar habits and conditions of patients.

The mechanical principles of surgery and obstetrics are in all places the same; but even in surgical and obstetrical practice the general conditions of the patients will often materially influence the course to be pursued, and the results of mechanical measures, and especially the constitutional treatment, will require to be modified by the state and surroundings of the individuals.

It is too obvious to need more than the simple statement that conditions of patients in Europe differ from those in this country, and that there is an immense difference between the poor, starved, intemperate or vicious persons found in the general hospitals in large European cities, and the masses of temperate and well-to-do people in this country. Climate, locality, habits—everything—are vastly different.

It must be admitted that those physicians who have derived their experience and drawn their conclusions from European city hospital practice, supplemented only by a consultation and office practice—which is the case with nearly all our foreign authors—very seldom seeing acute diseases in any other than their severer forms, and in their advanced stages—cannot be considered as the best, or, indeed, as safe guides for those engaged in general practice, as those who see patients in the beginning of their diseases, whether in cities, villages or the rural districts of our country.

It is much to be feared that the almost exclusive reading of

foreign works, written by men with the kind of experience indicated, has led, and is leading, to wrong views of the adaptability and powers of therapeutical agents, and is in the greatest danger of leading to inefficient and positively injurious modes of treatment.

Extremes in our profession as elsewhere are to be met with, and while over confidence in medicines not unfrequently exists, leading to excessive medication, a want of confidence in therapeutical agents, or medical nihilism, is quite as great an evil; and this is likely to be formed, and to be fostered and communicated by those whose practice has been in European city hospitals, and in consultations in the later stages of extreme cases.

We do not wish to be understood as objecting to the publication and the reading of foreign works on the practice of medicine; but we insist that too much dependence upon and too closely following such works in general medical practice is often disastrous to the interests of our patients. We fear that some of our American writers on practical medicine are too much influenced by foreign writers, whose experiences have been so different from the general practitioners among us.

We are glad to see that signs of change from this state of things are appearing. In Prof. Flint's recent productions more attention is given to therapeutics, and a little more confidence seems to be entertained in the power of remedies. Prof. Bartholow's writings mark a period of reaction from medical negation; and the still more recent work of Prof. Palmer, which is the result of his long experience as a practitioner and teacher, and of extended observation in this and other countries, and which, while giving evidence of study, is written from an American stand-point, is clear in its statements and reasonable in its conclusions, and is calculated to inspire confidence in the power of remedies, especially when applied in the early stages of disease, is yet more encouraging.

An examination of this work has suggested some of the foregoing thoughts which we deem important to be brought to the minds of the profession in these times of abounding foreign publications, and when the interests of some publishers and controllers of med-

ical journals inspire laudations of the re-published foreign works, and unfair and even untruthful statements in disparagement of American productions.

While giving heed to the results of investigation and experience from every quarter, we want American practical works for American practicing physicians, and American therapeutics for the peculiarities of American diseases. We want for students and practitioners, pathological and therapeutical principles clearly stated, and explicit directions for the treatment of diseases in their incipency, in their early as well as in their advanced stages, in their milder as well as in their severer forms, in the country as well as in the city, and in private and general as well as in hospital and special practice. We are glad to know that American works are being produced specially designed for meeting these requirements, and that this last production has been so successful in accomplishing its purpose.

Selections.

THE TEETH IN DIABETES.

Dr. Magitot has, after an examination of many diabetics, come to the following conclusions: First, examination of the mouth of diabetics furnishes a constant symptom of the disease. Second, this symptom is a lesion of the alveolar border, which may be designated as an alveolar osteo-periostitis. Third, this manifestation appears at the outset of the disease, persists during its course, and can, in consequence be considered a pathognomonic symptom. Fourth, this alveolar affection considered as a symptom of diabetes, presents three periods. Its first period is that of simple deviation of the teeth. Its second period is that of loosening of the teeth and alveolar catarrh. Each of these periods is in relation to the phase of the constitutional disease. The third period, that of the falling out of the teeth, corresponds to a more advanced state of glycosuria. Besides this last symptom there may

occur, if the patient lives long enough, an osseous resorption, which may or may not be consecutive to a gangrene of the gums. The appearance of this latter complication is evidence of a critical stage of the disease, as it ordinarily ushers in its fatal termination. The value, as a symptom, of the first stage of dental changes, remains to be determined. It must be obvious, however, that it can only occur in the more chronic forms of glycosuric diabetis.

SWALLOWING FALSE TEETH.

An inquest was held at St. Bartholomew's hospital by Mr. Langham on the body of a man from Rhayader in North-Wales, who died from the effects of swallowing a small plate carrying two artificial teeth. He was brought from Wales to London, and admitted into the hospital, and an operation was performed to relieve the urgent dyspnoea, but death eventually supervened owing to an abscess caused by the impaction of the plate. There is no rose without a thorn, no advantage without a drawback. Even the blessing of false teeth to the toothless has a possible curse hidden beneath its fair exterior; the teeth may break loose from their fixings or fastenings, either when in use or while the wearer sleeps, and being either swallowed or drawn with the breath into the larynx, trachea, or bronchus, become converted from an aid to living into a cause of death. The moral of this consideration ought to be, not that the dread of being "in peril by false teeth" should frighten persons from wearing them, but that the dentists should be particularly careful to provide secure fastenings. There can be no doubt that there is a great deal of careless work in the fitting of artificial teeth. Setting aside the multitude of clumsy and inartistic teeth thrust into the mouths of the ignorant or too forbearing, there is a large proportion of cases in which safety is sacrificed to seeming comfort or appearance. It may be easy to wear a set of teeth, or to keep a single tooth in place with ordinary attention when the attachments have been reduced to a min-

imum, but a very little careless eating or talking may, at any moment, render such attachments of no value. We have heard dentists themselves express wonder at the fact that "sets" supplied at the special request of the wearers, with little or nothing to hold them in place, could be worn. Dentists should insist on making the teeth they apply thoroughly secure; and their clients should submit the question of fastenings, both as regards number and extent, entirely to their judgment.—*The Lancet*.

SEVERE HEMORRHAGE AFTER TOOTH EXTRACTION TREATED BY TRANSFUSION.

The *Revue Odontologique* for April contains an interesting account of a case of almost fatal hemorrhage after tooth-extraction. The patient, a young soldier of twenty-two, with a marked history of hereditary and collateral hemorrhagic diathesis, was admitted to the Hotel Dieu, and had some molar roots removed without telling the house surgeon any facts as to his history, and the operation which was performed was followed by a profuse hemorrhage of a dark color, without clots. Next morning plugging with lint and perchloride of iron was tried without permanent effect. On the third day actual cautery was tried at the bottom of the socket, followed by plugging with compressed sponge, the jaws being fixed by a bandage, and ergotine subcutaneously injected. On the fourth and fifth there was no hemorrhage; injections continued. Next day, the sixth, the bandages &c. were removed, owing to sloughing and suppuration of the gums, and from the raw surfaces profuse bleeding recurred, and no local measures were effective to arrest it. On the eleventh day the patient was moribund, and it was decided to try transfusion of blood. After plugging the socket again, 100 grammes of blood were transfused into the cephalic vein, with immediate relief to the patient. In three hours the trouble began again and continued until next morning, when, after a second transfusion, the patient began to revive,

although an access of syncope nearly proved fatal during the operation. However, the hemorrhage was stopped, and in six weeks the patient was discharged cured.

HOT WATER AS A BEVERAGE.

It has become quite the fashion of late to use hot water as a beverage, and, as with all agents employed in this way, there is great danger of running the thing to an extreme, and thus do harm rather than good. It is in consequence of this that we find conflicting accounts of results, particularly in the lay press, and it is our duty as medical journalists to make the subject clear if possible. First, we should start upon the physiological foundation that agents taken into the stomach at a temperature varying from 100° F. are not in the most favorable condition to digestion, and that excessive extremes from this point, not only retard this process, but sometimes set up a serious indigestion or perhaps an acute gastritis which may become chronic.

To obtain the therapeutic powers of hot water, it is important that it be taken as hot as it can be borne, and at a time when there is no food in the stomach. This point should be imperatively urged upon patients to whom this treatment is prescribed. Not long since an article appeared in the lay press warning people against the use of water above a certain temperature, upon the physiological grounds above indicated, and the advice was misleading, from the fact that the article in question did not consider the subject in all its bearings. Hot water, when taken into the stomach under these physiological restrictions, becomes one of our most valuable therapeutic means, and will relieve many an indigestion, gastritis, constipation, etc.—*N. Y. Medical Times.*

THE PRESENT ETIOLOGICAL STATUS.

In the first number of the present volume of the *INDEPENDENT PRACTITIONER*, we said: "At the present time the tendency in investigation is largely toward the etiology of dental diseases, and in this field we hope that this journal will do some effective work." No one will deny that this implied pledge has been quite fulfilled in the six numbers already issued. Five valuable papers have been presented, and no dental journal can boast of having done more to add to the knowledge of the origin and character of the diseases which dentists combat than can the *INDEPENDENT PRACTITIONER*. Other valuable contributions are yet waiting, which will be published in due time. Yet we are not sanguine of soon seeing this much vexed question definitely settled for all time.

It is quite enough if we can be the medium through which additional light may be obtained, and a better understanding of the laws which govern oral diseases be gained. The advocates of the several theories are all tenacious in their beliefs, and each is assured that he alone possesses the true key to the mysteries of oral pathology. It is well that this is so, for a half-hearted advocate will scarce make any decisive progress. The world likes positive men. Yet one should not be so dogmatic as to ignore unpleasant truths. No single hypothesis has yet been presented which is unassailable. There are so many factors which may possibly make up the sum of the etiology of caries that the creed of Dr. Miller would seem to commend itself to the judicial and unprejudiced mind, when he says: "Fungi, even when reinforced by acids, do not in all cases prove themselves sufficient for tooth disorganization. There appears, in many cases at least, to be some other element at work."

The man who is already committed to a theory will not, perhaps, be enabled to subscribe to this, yet we are certain that if the enthusiastic advocates of the various exclusive hypotheses were fully acquainted with the views held by the others, there might not be such irreconcilable differences as at first sight would be suspected.

The large attendance at the Springfield meeting was mainly due to the fact that it was generally understood that the subject of etiology would be thoroughly considered, and it was amusing to see how entirely the "bacterians" were misunderstood. Perhaps this was due in part to the injudicious presentment of that hypothesis by some of its zealous advocates, who themselves are not very clear in their conception of the theory. They were represented as teaching that micro-organisms are living, breathing, sentient, malignant beings, that of malice aforethought attack and actually devour sound, healthy teeth. Any one who refers to these organisms as "bugs" only advertises his own ignorance. We are not an advocate of the purely bacterian origin of tooth decay, but we do not like to see a theory condemned upon false grounds.

As we understand the teachings of that school, they simply affirm that if the vitality of a tooth be sufficiently lowered and its structure be favorable, micro-organisms—vegetable fungi—may enter it and induce the destructive kind of fermentation which takes place in all organic, devitalized matter under favorable conditions, and that the organic portion once destroyed, the inorganic soon crumbles, and thus the tooth is demolished.

The advocates of the purely chemical theory, on the other hand, ignore any part which the organic or living portion of the tooth may play in caries, and impute it to a simple chemical solution of the inorganic matter.

Those who hold to the inflammation hypothesis believe that some outside influence initiates the pathological condition, which then pursues a course somewhat analogous to that in ordinary tissues.

The observations of Dr. Miller lead him to the conclusion that the first step in dental caries is from without, and is brought about through the action of some acid, and that the action of this acid precedes the invasion of fungi which, the path once opened for them, may play an important part in tooth demolition. He believes also that there are other factors, not yet fully understood, which are active in this destructive metamorphosis.

It may be seen that, correctly understood and interpreted, all

these hypotheses may not be entirely inharmonious. Even the bacterians admit that some agency precedes the invasion of micro-organisms, since they acknowledge that caries presupposes a certain pathological condition. All the others agree that this primary action is doubtless due to acids. The area of softened dentine of Miller, and the zone of inflammation of Abbott, may be identical. But the observers interpret certain appearances differently, and so, after all, the main points of divergence are in the various readings of the microscope, and thus the apostles of the separate theories are not so far asunder as might at a glance be supposed.

Concerning the great good which has resulted from the studies of all these observers there can be no question. To Drs. Bodecker and Abbott, to Prof. Mayr and Dr. Stockwell, and last, but not least, to the exhaustive researches of Dr. Miller, the profession owes a debt of gratitude which it will in time fully acknowledge. The end is not yet, for the last named of these gentlemen has but just entered upon an entirely new series of observations which, we doubt not, will throw yet more light upon this hitherto dark subject.

It may not be unprofitable to very briefly review the opinions held by different writers upon dental pathology.

The earliest authors presented no definite theory, but Fox believed that caries originated within the tooth. He called it "inflammation in the bone of the tooth, resulting in mortification."

William Robertson, in 1835, first propounded the purely chemical theory.

John Tomes, in 1848, called caries a "death of the tissue and loss of the power of resistance to the action of acids."

Charles Tomes leans more toward the views of Robertson, although he does not ignore the vital influence.

Magitot supports the Chemico-vital theory of John Tomes.

Wedl takes substantially the same view.

Bridgeman, (English prize essay upon dental caries) attributes decay to purely electrical conditions.

Spence Bate, of Plymouth, England, lays it to the existence of carbonic acid in abnormal quantities.

Leber and Rottenstein to *Leptothrix*, or cryptogamous growths.

With the views of later writers our readers are doubtless well acquainted.

A GOOD SUGGESTION.

Prof. Taft, in the June number of the *Dental Register*, says—

“The journalistic interests of the dental profession of the country have assumed such an importance and magnitude as to warrant associate and conjoined consideration on the part of those now immediately connected with and conducting its affairs.”

He suggests that the editors of the various dental journals of the country hold a meeting during the sessions of the American Dental Association at Niagara, and that a permanent organization be formed. Every profession must be greatly dependent upon its literature for its healthy tone, and the improvement and growth of the various journals devoted to dentistry might be materially assisted in many ways by a thorough understanding between and fraternal co-operation among their conductors. Especially should this be beneficial to the younger journalists, and we therefore heartily second the proposition of the *Register*, and suggest that Professor Taft, as the undisputed Dean of the corps of dental editors, issue a formal call for such meeting.

EXPLANATORY.

In the confusion of the moving of this journal to Buffalo a part of the subscription list was misplaced, and it only turned up some time after most of the edition was mailed. Any of our subscribers, therefore, who received the May number unusually late, will be kind enough to ascribe it to the proper cause. We hope to get everything in proper order after a while, but we must ask that forbearance be exercised for a time, toward both the business and editorial departments.

NEW DEPARTMENT.

In the July number we propose to organize a department in which may be brought to the notice of the profession whatever is new in dentistry; appliances, material, and remedies. It has too often been the case that the credit due to some patient investigator or experimenter has been filched from him and appropriated by another, perhaps even guarded by a patent, because of the lack of opportunity to properly claim priority of invention. We will undertake to receive any new appliance or invention, give it careful examination and trial, either personally or by some one of our associates, and report upon it through the pages of this journal, giving due credit to its originator. Thus the claim of originality may become a matter of imperishable record, and any dentist may secure the credit which may rightfully be his due.

We wish it distinctly understood that this is not to be a medium for indiscriminate puffery. We cannot undertake in all cases to even express a decided opinion upon the merits of every article submitted to our examination. But we will endeavor, when there is sufficient opportunity for fully testing any appliance, to give a fair presentation of any salient advantages or demerits which it may possess. The profession must trust to our honesty of purpose in giving our opinion, and we can assure it that we will not knowingly be biased in any way.

Articles will be returned at the expense of the owners, but full directions for such return must accompany them. They will be carefully used, but we cannot be responsible for any possible loss or damage.

ANOTHER LOOK AHEAD.

The May number of the *INDEPENDENT PRACTITIONER* was issued from Buffalo, and we then intimated a change of ownership, but were unable to give the results of negotiations then in progress. Nor are we yet prepared to announce all the good things which are in store for our dental readers.

Experience has taught that a journal like this must have a definite aim, and can satisfactorily serve but one class of readers. The general practitioner demands reading matter especially intended for and adopted to his wants, and the specialist desires the same. We have the very highest authority for the declaration that one cannot serve two masters : " Either he will hate the one and love the other, or else he will hold to the one and despise the other." Dentistry has become too great to be sufficiently served by a mere journalistic department. There is a large class of diseases which have too often been placed under the care of the general practitioner, but which the intelligent and educated dentist is most competent to treat. A general view of these conditions should be of interest to every medical man, but their particular consideration ought to be from the standpoint of the dentist. Therefore, it has been deemed advisable, at the close of this volume, to devote the *INDEPENDENT PRACTITIONER* to the specialty of Dentistry.

A dental journal, to meet all the wants of the profession, ought, of right, to be conducted by dentists ; but the successful practitioner has usually little time for matters outside his office, and were one man to edit and publish a creditable journal it would demand his retirement from active practice, and thus defeat one of the objects in view.

Again, it is a notorious fact that the profession is slow to support any enterprise which has for its aim only the general good, and hence a paying journal, it has been supposed, must have the financial support of some mercantile interest. Yet there are a few dentists who are willing to spend and be spent for the love of the profession to which they have dedicated their lives. They believe that dentistry should have some journals which are not hampered by any necessity for mere money getting ; that there are some important interests which may be best served by a professional magazine that is disconnected from any commercial enterprise. A burthen which would be too grievous for any one man may be easily borne by the co-operation of a number. Therefore, when it was found that the *INDEPENDENT PRACTITIONER* must change hands, a meeting of dentists was held, and an agreement to under-

take the work of its publication was made. The first plan suggested was to engage in the enterprise representative men from every section of the United States, but further consideration revealed the impracticability of this scheme, because meetings for necessary consultation and counsel would be impossible. It was, therefore, determined to confine the active management and risk of the undertaking to a comparatively small number of men, who could more easily be got together for any necessary conference, and to ask the co-operation of the others without imposing upon them unnecessary labor.

That association has been formed, and this journal is now under their control. It will be published by them without any expectation of pecuniary return. If it pays its way they will be abundantly satisfied, and should it do more they will devote any surplus, after paying necessary expenses, to internal improvements; adding desirable illustrations, offering payment for original articles, and increasing its size. It hopes for the active support of every dentist who loves his profession, and it asks for sympathy in its disinterested work. It especially appeals to the writers in the profession for assistance, and believes that it will be enabled to lay their communications before the thinking men in dentistry, and thus secure a full consideration of anything which they may desire to present. It invokes the assistance of every dentist in the removal of the reproach of the profession, that no sympathy or support will be given to any one who labors from disinterested motives.

The following dentists have embarked in this undertaking, and each one pledges himself that his very best efforts shall be exerted to make the *INDEPENDENT PRACTITIONER* a credit to dentistry, and worthy the support of the profession :

Frank Abbott, New York.

W. C. Barrett, Buffalo.

C. F. W. Bodecker, New York.

William Carr, New York.

C. E. Francis, New York.

O. E. Hill, Brooklyn.

Wm. Jarvie, Jr., Brooklyn.

A. L. Northrop, New York.

S. B. Palmer, Syracuse.

The executive committee, who will have charge of all the business affairs of the Journal, is composed of Drs. Carr, Abbott and Hill. The Treasurer is Dr. C. E. Francis. The Editor will be Dr. W. C. Barrett.

All communications, therefore, which relate to business, such as subscriptions, advertisements, and matters of like nature, should be directed to Dr. William Carr, 35 West 46th Street, New York.

Editorial communications, exchanges, books for review, and articles for editorial notice, must be sent to Dr. W. C. Barrett, No. 11 West Chippewa Street, Buffalo, New York.

THE SPRINGFIELD MEETING.

The union meeting of the Massachusetts State and the Connecticut Valley Dental Associations was an eminently successful one. Whether we consider the number in attendance, the enthusiasm manifested, the character and intelligence of those present, the value and importance of the papers read, or the earnestness of the discussions, from almost any standpoint, in fact, the meeting was a memorable one. It was admirably managed, too, and there was scarce one unpleasant incident connected with it.

The executive committees had arranged for the thorough presentation of two subjects which are now specially interesting the profession—the etiology of dental caries, and artificial crowns. In etiology, nearly all the modern theories were presented by able essayists, and the discussion over them was earnest and exhaustive.

Drs. Bonwill, Buttner, Parmly Brown, and H. A. Baker gave demonstrations of the various methods of attaching artificial crowns, and Dr. Bliven illustrated the method of making dental instruments. There were a number of papers read upon other subjects, but space will not permit our enlarging upon them. Con-

cerning the knowledge and enthusiasm manifested, it is sufficient to say that a body of dentists who, with scarce an exception, will, upon one of the most oppressive days of summer, listen anxiously for nearly three hours to one speaker while he labors to unfold a technical and obscure subject, must be exceptionally intelligent.

Our western friend, Dr. J. A. Robinson, of Michigan, was there, claiming, as usual, kinship with every one present. He read a capital Robinsonian paper, too, which we expect to present to our readers in the near future.

We regret that we cannot present a full report of the papers and discussions, but Springfield has an excellent dental journal of its own, and to that we must refer any of our readers who desire a more particular account of this interesting meeting.

A LIBERAL OFFER.

To any person who will send \$1.25, we will mail the *INDEPENDENT PRACTITIONER* for the balance of the year, commencing with the June number. We will not agree however, that this offer shall stand open longer than until July 15th prox.

Current News and Opinion.

EDUCATIONAL ASSOCIATION.

In 1866 the faculties of the different dental colleges of this country formed an association, the object of which was to promote the interests of dental education. The organization was effected with good promise for the future. It continued for two or three years, working harmoniously, and accomplishing something each year for dental education. At the third meeting one college withdrew without even intimating a reason therefor; then another college in the same city seemed impelled to take the same course,

then one in a neighboring city for self-protection did the same. As a result the association was abandoned for the time at least. From that to the present, no effort has been made for its revival. There were then six colleges in the United States; now there are about twenty. Certainly, if when there were six such an association was desirable, now that there are twenty it is more desirable and important. It has been suggested by the representatives of several of the colleges that a meeting be held at Niagara, at the time of the meeting of the American Dental Association, with the view of reviving the Association, or forming a new one. This would certainly be a step in the right direction, and it seems eminently desirable that such a movement be made. Let all who are interested consider the matter, and in some way give expression to their opinions and conclusions in the matter.—*Dental Register*.

THE ODONTOLOGICAL SOCIETY.

The next meeting of the New York Odontological Society will be held at the country residence of Dr. C. E. Francis, in Glenbrook, Conn., Tuesday afternoon, June 19, 1883. It is hoped that as many members as possible will make it convenient to attend, and that they will so notify Dr. Francis at 33 West 47th Street, New York. Members will take the three o'clock New Haven train at the Grand Central Depot, and purchase return tickets for Glenbrook.

J. MORGAN HOWE,
Corresponding Secretary.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS.

The Pennsylvania Board of Examiners will, as usual, hold meetings for the examination of candidates during the session of the State Dental Society, commencing Tuesday, July 31, 1883, and continuing three days, at Cresson, Pennsylvania. Applicants for

certificates will be required to show specimens of work in both operative and mechanical departments.

W. E. MAGILL,
Chairman Ex. Com.,
Erie, Pa.

DETROIT DENTAL SOCIETY.

The Detroit Dental Society has elected the following officers for the ensuing year :

President—Dr. George L. Field.

Vice-President—Dr. Henry Cowie.

Treasurer—Dr. James Cleland.

Secretary—Dr. H. K. Lathrop.

Member of the Board of Censors—Dr. E. C. Moore.

The society, which has been in existence for one year, has about twenty members, and is in a good condition.

INDIANA STATE DENTAL ASSOCIATION.

The twenty-fifth anniversary of the Indiana State Dental Association will be held this year in Indianapolis, in the parlors of the new Dennison House, beginning Tuesday, June 26, at 11 o'clock A. M. As this is a quarter centennial, the list of subjects used in 1858, when the Association was organized, will be used again in June, viz :

- 1st. Best means of preserving teeth.
- 2d. Treatment of exposed nerves.
- 3d. The best means to correct irregularities.
- 4th. Mechanical dentistry.
- 5th. Miscellaneous subjects.

Those attending the meeting should stop at the Dennison House, where they will be accommodated at \$2.50 per day. The various dealers and manufacturers will exhibit at the Dennison. This

quarter centennial celebration will be closed with a jubilee and banquet.

J. E. CRAVENS,
President.

A SINGULAR STATEMENT.

At the last meeting of the Brooklyn Dental Society, Dr. Thomas, of the S. S. White Manufacturing Company, said that in his experience of a number of years in several of the largest dental depots in the country, he had observed that at least one-third more left incisor and cuspid teeth were sold than the corresponding ones on the right side of the mouth, indicating that the natural anterior teeth upon the left side were lost more rapidly than those on the right. He said that sets of the six front teeth were continually broken up to supply this demand, and that dealers always had a quantity of the odd teeth left.

The statement caused considerable surprise to the members present, who would be glad of further information.

THE A. M. A.

At the late meeting of the American Medical Association, Prof. T. W. Brophy, of Chicago, was elected chairman of the section of Oral and Dental Surgery. Dr. J. S. Marshall, of Illinois, was elected Secretary.

Dr. Brophy was largely instrumental in the establishment of this section, and has always been active in its support. His election as Chairman was, therefore, but a proper recognition of his labors, as well as a tribute to his unquestioned ability and merit.

Bibliographical.

OUR BOOK TABLE.

There are certain journals which no professional man can afford to do without. *The Century Magazine* is one of these. Established by the late Charles Scribner, and edited for years by the lamented Dr. Holland, it rapidly won its way to popular favor and became pre-eminent in the world of letters, as in that of art. In the latter department, in fact, it may be said to have wrought a revolution by its wondrous specimens of wood engraving. Under the conduct of its present managers it has taken higher ground than ever before, and may now justly be rated as first in its class. Every complete office has *The Century* upon its center table.

The physician who desires a complete epitome of whatever is new in medicine, the freshest thought in all its departments, needs *The Medical Record*, a weekly, published by the house of Wm. Wood & Co. It is emphatically a *Record* of all that is taught and achieved in medicine. It is important alike to the dentist and the regular practitioner, if either would keep abreast the advance of thought in all departments of medicine.

Popular Science Monthly, published by D. Appleton & Co., is another of the journals indispensable to every man who desires to know what is going on in the world of thought. It has contained some of the most valuable original contributions [which have been made to modern science. A glance at the table of contents of the June number makes one wonder how he has ever existed without it. Every medical man will certainly wish to read Dr. Wilders' "Vivisection in the State of New York," as well as Dr. Shepherd's "Medical Quacks and Quackeries."

The *New York Sanitarian* is especially devoted to the preservation of health, and to mental and physical culture, and is always full of suggestive articles that ought to be read by everybody. It is not only of special import to the professional man, but it is entertaining to the general reader, while to every one who has a home and family it should be indispensable.

Valdictory address delivered at the First Commencement Exercises of the Dental Department of the University of California, by S. W. DENNIS, M. D., D. D. S., Dean of the Faculty and Professor of the Principles and Practice of Operative Dentistry, and Dental Histology—and by H. J. PLOMTEAUX, D. D. S.

We congratulate the dental profession of the Pacific slope, that at last they have an educational institution of their own. The addresses under consideration are mainly devoted to an exposition of the course of study and the advantages and prospects of that school. We hope it may be as successful as its best friends can desire.

Notes on Operative Dentistry; by MARSHALL H. WEBB, D. D. S. Philadelphia; The S. S. White Dental Manufacturing Co., 1883.

The profession has not yet ceased to mourn for the loss of Dr. Webb, nor will it do so for some time, we hope. So genial, so kindly in disposition, so eminent as an operator, it was a severe blow to professional progress when he was removed. It is sad to reflect that all there is left of him to-day is the kindly personal recollections of his presence, the remembrance of his faithful teachings, and this book of one hundred and seventy-five pages, containing a record of the life-work of its author.

We cannot give our readers a better idea of its scope than by publishing its table of contents, merely saying that every chapter is an epitome of the ideas upon that subject so earnestly urged by Dr. Webb during his life.

Chap. 1. Histology.

“ 2. The Deciduous Teeth—Prevention of Irregularity and Decay.

“ 3. Application of the Rubber Dam.

“ 4. Preparation of Filling materials.

“ 5. The Mallet.

“ 6. Filling cavities in masticating surfaces.

“ 7. Filling cavities within Labial and Buccal Walls.

“ 8. Pieces of Porcelain for Filling Cavities of Decay.

“ 9. Filling cavities within Approximal Walls.

- " 10. Preparation of Cavities for Restoration of Contour.
- " 11. Restoration of Contour, and prevention of extension of Decay.
- " 12. Summary of principles relating to Filling Teeth.
- " 13. Covering and Protecting frail walls of Enamel with gold.
- " 14. Placing Crowns on roots of Teeth.
- " 15. Attaching Crowns to Teeth when Roots are Missing.
- " 16. Irritation and death of the Pulp.
- " 17. Filling Pulp-Chambers.
- " 18. Treatment of Abscess.
- " 19. Pericementitis.
- " 20. Necrosis.

Every line written by Dr. Webb is worthy the most careful study, and to every portion of the book for which he is responsible we can give unhesitating commendation.

But there is a feature of which we speak with great reluctance, and only at the promptings of what we consider a duty to the profession. Of late, in both medicine and dentistry, the publishers of books have resorted to unjustifiable means to pad out the work, and at the same time to place their wares before the profession. Advertising cuts of goods and implements quite unnecessary to an understanding of the text are inserted, and thus an important subject is made puerile, while the whole work is tainted with a suspicion of the shop. Was it necessary, we would ask, to give an illustration of a common pair of forceps, of ordinary foil shears and plyers, of files and scrapers and excavators, that this book might be adapted to the comprehension of its readers? Every dental student is familiar with them, and their reappearance here, extracted from the catalogue of a dental manufacturing company, is scarce complimentary to the intelligence of the reader. They mar the book, and we are sincerely sorry that they were admitted. This is not the first dental book that has so offended good taste. Other publishers have done the same. The edition of Coleman, issued last year, looks like a dental catalogue, and other works have been open to the same criticism. We sincerely hope that the next book issued will not be defaced with these cheap cuts.

Webb's Operative Dentistry is handsomely printed and bound, and it contains an excellent portrait of its author, which of itself is almost worth the price of the book.

Original Translations and Abstracts.

FOREIGN BOGUS DIPLOMA MILLS.

An extensive trade in bogus decorations has recently been discovered in Naples, Italy. For a number of years there have existed several fraudulent committees who issued, for a round price, orders, academic degrees, prize medals and other decorations of a similar nature. Lately one of the committees had the impudence to make a decoration offer to the King of Bavaria, with a promise to put his name into the "libro d' oro" of Naples, which in reality has no existence. This brought about the explosion. Among a very extended correspondence no less than 700 bogus diplomas were found, and many requests from even well known persons. If the government of Naples was less discreet, many a decoration-and-diploma-maniac would have cause to blush. In connection with this Dr. L. Ribolla Nicodemi, of Palermo, publishes the following letter: "There is an 'Academy of Arts and Sciences' in Naples, which issues titles and diplomas for a certain sum of money, after the pattern of the 'Reale Associazione de' Benemeriti Italian,' in Palermo, of the 'Circolo promotore Partenopeo' in Naples, and others. There has been no exhibition lately in Naples, but a permanent exhibition of the 'Giambattista Vigo' which sells its 'gold medals' for about four dollars apiece."—*Zahntechnische Reform.*

PROPAGATION OF BACTERIA.—The investigations of Darwin and Pasteur have shown that earthworms are an important vehicle of transportation of minute organisms. Professor Schnetzler has lately demonstrated that a certain number of living bacteria and

their germs are always found in the interior of earthworms. It is true that bacteria in enormous quantities are floating in the air, and we have a small apparatus at our disposal by which we can easily convince ourselves of this. This is none other than the nasal cavity, which retains those minute air-particles upon its mucous membrane. To observe these we must syringe the nose with distilled water, and collect the obtained fluid in a perfectly clean watch glass. Magnified 700 to 800 times, we find among various other particles living bacteria. If we keep this fluid hermetically closed, we find that after a few days these bacteria have multiplied largely, and bacterium termo, vibrio, spirillum, bacillus subtilis, with sometimes even a few infusoria, are present. Prof. Schnetzler has successfully cultivated these germs in a solution of gelatine and distilled water. The question is, why do not these bacteria multiply in the nasal cavity and find their way into the trachea and lungs? Their advance is undoubtedly stopped by the vibratory movements of the cilia, and by the slight alkaline reaction of the nasal cavity. Colin has demonstrated that bacteria which produce an acid fermentation, will die in fluids of alkaline reaction. Contagious bacteria will multiply on mucous membranes at a wonderful rate, as shown in the micrococci of diphtheria, which obtain entrance into the respiratory organs through the atmosphere, as also the bacteria of anthrax. Bacillus tuberculosis, as stated by Koch, can be carried from one person to another by means of the respiratory passages. Prof. Schnetzler believes that hay fever originates in the same way, by bacteria, which are taken up by the nasal cavity. While the development of bacteria on normal mucous membranes is generally limited, millions are found in the excrements of healthy children.—*Monatsschrift des Vereins Deutscher Zahnkuenstler*.

ADULTERATED FOIL.

A bill is before the German Parliament to prohibit the use of any metallic foil which contains more than one per cent. of lead, in the packing and preserving of food of any kind offered for

sale. It also prohibits the use of caoutchouc which contains lead or zinc, for the manufacture of nipples, baby-bottles, drinking cups, or playthings. Lead includes oxide and sulphate of lead; zinc includes the oxide of zinc. It is expected that the bill will be in operation after July 1.—*Zahntechnische Reform*.

GERMAN DENTISTRY.

There are as yet, in the German Empire, 2,500 cities with a number of inhabitants varying between 5,000 and 50,000, without any dentist. This list includes only cities with 5,000 or more inhabitants, and does not notice those of smaller numbers. As an average, we find in Germany in cities above 50,000 one dentist to every 19,000 persons; in cities between 20,000 and 25,000, one dentist to every 20,000; in cities of 5,000 to 20,000 inhabitants dentists are found in the proportion of one to every 92,000 inhabitants, while in the smaller cities below 5,000, seven dentists are working hard to alleviate the pains due to teeth of six millions of people.—*Zahntechnische Reform*.

WHAT A RECORD.

A well-informed author estimates the number of teeth which are annually extracted in the United States, at twenty millions, and the number of artificial teeth used in the same period of time at eight millions.—*Zahntechnische Reform*.

AN ALVEOLAR DILATOR.

A new instrument is described by Dr. Hagelberg, of Berlin, in the February number of the *Deutsche Monatsschrift für Zahnheilkunde*.

The instrument is designed to dilate the alveolus in the extraction of such roots as are difficult and exceedingly painful to re-

move by the ordinary means. The pain produced in the use of excising forceps is very severe, and few people will submit to the operation without the use of an anæsthetic. This it is dangerous to administer to patients afflicted with heart disease, plethoric diathesis, etc. Furthermore, it is often impossible with excising forceps to remove a badly decayed or broken root, when the alveolar border is very short and the palatine arch shallow. Dr. Hagelberg narrates the incidents of a case which gave him the first idea of the instrument. He says "An hysterical lady wished to have the left superior second bicuspid and molar, and the roots of the right superior second molar extracted, with chloroform. The patient was very restless under the influence of the anæsthetic, at first stamping with her feet, and afterward, as narcosis progressed, tossing the head from side to side, and this lasted during the whole period. It was necessary for an assistant to hold her head firmly, as without this no forceps could be applied. The two teeth were removed quite easily, but the roots, especially the lingual, which was very badly decayed, could not be extracted. These gave rise to a very offensive odor and consequently demanded removal. After the patient had returned to consciousness, I very gradually pressed a thin spatula-like instrument between the alveolus and root, which dilated the walls of the socket sufficiently to enable me to get a firm hold upon the root with ordinary root forceps and so to extract it.

As a spatula can only effect dilatation of the alveolus on one side, a pair of forceps was constructed identical in their action with a pair of clamp forceps, that is, opening their beaks when the handles were pressed together. The blades of this instrument are thin enough to enable them to pass between the root and bone, when by gradually pressing the handles the alveolus is dilated.

The instrument can be obtained from W. Blume, Wilhelm Street, Berlin."

EXTRACTION WITH GAS.—"There is nothing very brilliant about our Bremen dentists," recently said a young lady to a member of

the profession at Berlin, "but they are very obliging. If you wish a tooth extracted with gas, they forthwith light the chandelier."—*Zahntechnische Reform.*

Popular Science Department.

AMERICANITIS.

Sir Charles W. Dilke, in his "Greater Britain," thought he noticed a tendency in the Caucasian native American to acquire the red Indian type of physiognomy. Mr. W. Mattieu Williams echoes this opinion, and has cited several pieces of evidence to show that a change in the direction mentioned is going on, and that it is a process of dessication produced by the dryness of our climate. Mr. R. A. Proctor asserts that, during his three visits to America, he lost about thirty pounds in weight, which he recovered on returning home. Mr. Williams' own son, after residing for some time in this country, became thin, lank-jawed and sallow, "displaying all the characteristic symptoms of what I cannot refrain from calling *acute Americanitis*," but began to recover immediately after returning home.

On one occasion, at the house of the late George Combe, at Edinburgh, some family portraits were brought out, including those of members who had remained at home, and photographs of members who had emigrated to America a generation before, and with them a portrait of Black Hawk. "We placed the chief on one side, the Edinburgh portraits on the other, and those of the descendants of the American emigrants between, and all agreed that the deviations from the original family type were in a direction toward that of the red Indian. Mr. Combe maintains that this is generally the case, and I agree with him in regarding the typical "native American"—that is, the descendant of early English settlers—as displaying physically (I do not say intellectually and morally) a notable degree of reversion—or rather deviation—toward the aboriginal type displayed in the best examples of red Indians—that is, the old fighting chiefs.—*Popular Science Monthly.*

POOR TEETH THE CAUSE OF MANY ILLS.

It appears not to be generally understood, even among cultivated people, although the fact has been dwelt upon with emphasis by the best medical authorities, that the presence of carious, crowded, or asymmetrical teeth in the human mouth is the progenitor of a long train of nervous diseases, comprising not only facial neuralgia and its concomitant troubles, but diseases of the ear, inflammatory as well as functional, eventuating often in partial loss of hearing, defects of vision, naso-pharyngeal catarrh, and other tormenting maladies. One of our acutest and most successful specialists in the treatment of nervous diseases has become so fully convinced by long experience of the part played by defective teeth in the development, not of neuralgia only, but even of the more obscure neuroses, that he always insists, as a condition precedent to the acceptance of the case, that a thorough examination of the cavity of the mouth shall be undertaken by a competent dentist, for, he says, not only may a single diseased tooth result in persistent nervous disturbance, but diseases of the brain, decay or perversion of the mental faculties, even epilepsy and tetanic spasms often have their starting point in dental irritations; and he has observed cases in which, while laying the foundation for a long train of nervous troubles, the irritated organ itself gave no sign, either by local pain or vague discomfort, of the agency it was constantly exerting to produce serious disturbance at some distant point.

THE SPEED OF THOUGHT.

We have several times given the readers of the *Journal* a report of what has been done by scientists to determine the rate at which nervous influence is transmitted through the telegraphic system of our bodies. Some recent investigations on the subject are thus summed up in the *American Journal of Arts and Sciences*.

Sensations are transmitted to the brain at a rapidity of 180 feet, or at one-fifth the rate of sound; and this is nearly the same in all individuals.

The brain requires one-tenth of a second to transmit its orders to the nerves which preside over voluntary motion; but this amount varies much in different individuals, and in the same individual at different times, according to the disposition or condition at the time, and is more regular the more sustained the attention.

The time required to transmit an order to the muscles by the motor nerves is nearly the same as that required by the nerves of sensation to pass a sensation; moreover it passes nearly one-hundredth of a second before the muscles are put in motion.

The whole operation requires one and one-fourth to two-tenths of a second. Consequently when we speak of an ardent, active mind, or of one that is slow, cold or apathetic, it is not a mere figure of rhetoric, but an absolute and certain fact that such a distinction, with varying graduation, really exists.

The method by which these nerve motions are measured is thus described:

If a cylinder divided into 360° be caused to rotate 1,000 times in a second, it is evident that the passage of one of those degrees before a given point is equal to the 1-360,000th part of a second; this may be divided by a microscope, so that a period of time equaling the ten-millionth, or even the one hundred-millionth, part of a second may be measured. By this arrangement it is possible to measure the rate of nervous impulse. Suppose an electric shock be given to the arm; it produces a sensation and a contraction of the muscles; then by noting the interval of time between the shock and the contraction of the muscles, the time occupied by the action of the brain to produce the contraction, however quick, will be ascertained. By trying this experiment on various parts of the body, the amount of sensibility of the different leading muscles may be determined.—*Boston Journal of Chemistry*.

IODOFORM IN TOOTHACHE.—Schaff recommends iodoform on account of its gently caustic action as an anodyne application to exposed tooth-nerves. The circumstance that a single or repeated application of iodoform does not produce any irritation, much less any inflammation of the periosteum, and the double function of

the remedy as a cleansing and disinfecting agent, make it especially appropriate as a caustic, particularly before the introduction of a temporary filling. The author uses a paste consisting of

Iodoform powder, gr. 60

Kaolin, gr. 60

Carbolic acid, gr. 8

Glycerine, q. s.

Oil of peppermint, gtt. 10.

Triturate the iodoform, kaolin, and oil of peppermint with enough glycerine to form a thick paste.—*Deutsch Med. Zeit.* No. 12.

DUST, MIST AND CLOUDS.—Whenever vapor condenses in the atmosphere, the condensation is always made on a solid nucleus, which is furnished by particles of dust. Without dust there would be neither mists nor clouds, and the super-saturated air would transform every object upon the earth's surface into a condenser upon which it would deposit its excess of water. Whenever the breath becomes visible in a cold atmosphere it demonstrates the impure and dirty condition of the air. The foam of the sea, meteoric matter and fires, are fertile sources of the dust and impurity.—*Aitkin, in Les Mondes.*

PEPSIN IN SEA-SICKNESS.—In a number of cases pepsin has proved effectual for the prevention of sea-sickness in passengers who had not made a sea-voyage before. When the first symptoms appeared, pepsin, sufficient to cover the point of a knife, was taken, followed by a glass of water acidulated with five drops of hydrochloric acid. The dose was repeated several times a day, more especially before and after meals. The favorable results obtained invite to further trials.—*Phar. Zeit.*, 1882, No. 20, *Ind. Blatter.*

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Original Communications.

ON THE DENSITY OF ENAMEL AS AN ELEMENT IN DETER- MINING THE PROPER TIME TO DEVITALIZE THE TOOTH-PULP.

BY J. EDW. LINE, D. D. S., ROCHESTER, N. Y.

Late in '79 a little miss of fourteen years was brought to us to have her teeth examined, and, if necessary, put in repair. She was exceedingly delicate in her general make-up, and to that degree that we immediately came to the conclusion that a corresponding delicacy would show itself in the teeth. And so it proved. The arches were handsomely curved, the upper and lower sets perfectly articulated, the individual teeth finely outlined, the color what might be appropriately termed "milk and water," the texture such as would readily give way to cutting instruments of whatever kind. We regarded this case as one in which filling and re-filling would necessarily be the treatment for some years to come, provided decay had up to this time made any progress. The examination brought to light several cavities in the incisors, and as many more in the molars. We decided, of course, to fill. But with what? The mother objected to gold because of its color, but would have that material used if in our judgment it was thought best. This objection was regarded, from a practical point of view, as of little or

no consequence, and was so stated; nevertheless it was not thought best to fill with gold, and for the following considerations: First, The certainty of failure with *any* material to save these teeth from the recurrence of decay; second, the belief on our part that the preparation of the cavities would entail a greater amount of physical and mental worry than the little patient could be expected to withstand; third, that it would call for the payment and repayment of a comparatively high fee, whereby might be slain the bird that lays the greenback egg; fourth, the total lack of that self-sacrificing spirit that is ever willing to shoulder the blame that usually attaches to the dentist when fillings fail, no matter whether the fault lie in defective manipulation, or in defects inherent in the material operated upon. In view of these considerations we decided to fill the front teeth with gutta percha, and the others with tin-foil. We filled. We at the same time reminded both parent and child that re-filling might become necessary, and possibly in a short time, and urged frequent visits to the office that anything wrong might be righted in good season.

According to expectation, hardly six months had passed when the case presented for the re-filling of one of the front teeth. The margins of the cavity had crumbled, and the gutta percha had given out. When about to examine the cavity, our attention was arrested by the color of the teeth, which was that of a set somewhat of a stranger to tooth-brush and powder. In answer to our remark that since her previous visit she had evidently given her teeth very little attention, she said that she had brushed them as regularly and as carefully as ever, and that notwithstanding their yellowish appearance they had not become that color through neglect. This statement we very soon verified, for we found that the changed appearance was due not to anything *on* the teeth, but to something *in* them. It would not rub off, and was not to be got out without the tooth. Here was a case in which six months' time had brought about a change from delicate "milk-and-water" teeth to teeth whose yellowish color and firm texture placed them among the strong and durable. Without a doubt the enamel had increased in density, which condition was easily accounted for by the generally healthful

look of the child and her changed manner—formerly listless and destitute of energy, now interested in everything and full of vitality.

Now it so happened that at this time we had our hands full of pulpless teeth, teeth with pulps dead, pulps dying, and pulps that promised anything but good behavior, out of alcohol. Every case—so it seemed at least—that presented at this time was for pulp treatment of some kind. Evidently pulps were “on a tear.” The thought occurred to us—Suppose we had destroyed the pulp of one of these incisors when their treatment first fell to us, and suppose that instead of growing denser the enamel had become less dense; or suppose we were to destroy a pulp *now* in this case, and the next six months bring about a change the opposite of that of the six months past, what would be the result?

Every one in active practice has met with cases to which the following descriptions will apply: A man of fifty years calls to have a crown set on an incisor root. We see at a glance that the other teeth are good, and readily infer that something out of the usual order has happened in the case of this particular tooth. In answer to our inquiries as to the cause of its demoralized state, he says that when a lad of fifteen he was struck with a stone, that he bit a pin, or that a traveling dentist discovered a black speck in or on the enamel near the gum, drilled a hole in the part and filled it, and that the tooth soon grew darker than the others, and finally crumbled to its present crownless condition. Our conclusion is that previous to the change of color in the tooth, the pulp had died, and probably from the cause named.

Another man of fifty years calls. He wants a full set of artificial teeth. We examine his mouth and find one upper incisor tooth, discolored, ragged, and worse as to looks than none at all. In accounting for the discoloration he names the same cause as the aged party examined a little before; and though this is a badly damaged tooth, he unnecessarily assures us that it has outlived all of its neighbors, every one of which gradually melted away “without apparent cause or provocation,” and their remains were removed from time to time by the dentist.

Here we have two men of fifty, one of them the possessor of

thirty-one good teeth and one badly decayed root; the other, of one solitary tooth and that not of the best. Both men met with like accidents at like ages, and are now of the same age. Between these times they have lived, moved, and had a being, each like the other in every important particular. Then why this difference as to their dental possessions? The reason must be looked for in conditions that prevailed at the time of the accident. The man with the thirty-one teeth and one root was in poor condition. Nutrition, because of the quality or quantity of material, or the system's inability to appropriate such material, was at ebb tide—going, but not necessarily quite gone. And while the death of the pulp cut off for good the main supply of nutritive material in the unfortunate tooth, the nutrition of the other teeth was merely suspended. On the return of general health the teeth with pulps increased in density, and that density was maintained, with the help of alkaline or neutral oral secretions, or possibly in spite of such secretions, if acid.

The man with the solitary tooth was in good condition at the time of the accident; nutrition was, and had been at its best. In his case it was flood tide, with a possible further rise; and though, as in the case first cited, the accident deprived the tooth of all means of nutritive supply, except through the peridental membrane, the tooth had locked up within itself that on which it could feed till fifty. But it may be asked why this tooth, with its principal means of nutrition cut off, should outlive its associates whose pulps had escaped injury until very late in life? The answer is—Up to the time of the accident all the teeth were supplied by the same means and from the same sources; but after the accident, while the pulpless tooth was compelled to draw its nutritive supply wholly through the peridental membrane, it could lose what it thus gained and what it had already stored up only through the same organ. Change for the worse in the general health interfered with the nutrition of all, and there was waste of material already stored up in the teeth, but not in the same degree. While all were losing some of their salts through the solvent action of the vitiated oral secre-

tions, those with pulps were losing more through the activity of the absorbent elements of these organs.

A glance at the minute anatomy of a tooth, and a little thought as to some of the functions of the several parts, may make this more clear. In the root we have the pulp in communication with the peridental membrane through and by means of the soft fibre of *Tomes*, the contents of the inter-globular spaces, and the *lacunæ*. In the crown we find it in communication with the outer surface of the enamel through and by means of the soft fibre of *Tomes*, the contents of the inter-globular spaces, and the less than three per cent of organic matter constituting the lace-like matrix in, around, by and through which the salts of enamel are deposited. Now all deposits of new material must be through the pulp or peridental membrane. All solvent effects may be through the oral secretions, or they may be through such secretions and the pulp and peridental membrane. Where well-made teeth are acted upon by the secretions only, their solution is comparatively slow; but where subjected to the action of such secretions in conjunction with the nutritive inactivity or the absorbent functions of the pulp, their term of usefulness is limited indeed.

If these things are true, it follows that the proper time to destroy the tooth-pulp—granting that it must be destroyed, and we have the not too frequent privilege of naming the time—is when the enamel is at its maximum density; for when it is not in this condition the tooth may be safely regarded as comparatively short-lived, and particularly so in case of failure in general health and consequent suspension or retrogression in the nutritive function.

NOTE.—“According to expectation,” we filled, and re-filled, and filled again with plastics, until May and June of the current year, when we filled with gold. The enamel (and other tissues, too, for that matter), is now not far from its maximum density, and we have every reason to believe in the comparative permanency of the final operation. The teeth were ripe for permanent work.

THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

The regular monthly meeting for the month of May, was called to order on Thursday Evening, May 31st, at the office of Dr. C. A. Timme, 190 Hudson Street, Hoboken, N. J. President Levy in the chair.

After the usual routine business, election of members and reports of committees, the following paper was read by Dr. James G. Palmer, of New Brunswick, on "Treatment of Devitalized Teeth."

Mr. President and Gentlemen of the Central Dental Association of Northern New Jersey:

At our March meeting, President Levy, without so much as by your leave, said, "Dr. Marsh will write a paper for our April meeting, and Dr. Palmer, for our May meeting." I did not feel much in the humor for it until the following incident occurred in my office practice. A young man, about twenty years of age, came to me and desired me to do whatever work might be needed in his mouth. I found the right superior central dead, and the fillings on both approximal surfaces in need of attention, one being gutta percha. I made some inquiry concerning the tooth, and learned that the patient had received a severe blow upon the face about three years before; that the tooth had been very sore and the face much swollen. The tooth was subsequently filled by a dentist whose name he mentioned. Being acquainted with the dentist, I wrote him concerning it, and was astonished upon receiving his reply. He said he did not think that he had treated the tooth, as he had nearly given up practice, and "never treated any but the six fronts, upper," seldom treating these now. Why, he did not say, but I was surprised, because from my knowledge of the gentleman I presumed that he followed a different line of practice. I removed the filling, found the pulp chamber full of gutta-percha, which I also removed, and found beyond it a little cotton, a short piece of steel (probably a broach) and a great deal of dark debris which gave forth an unmistakable and disagreeable odor.

With this incident as my incentive, I take the "Treatment of

Devitalized "Teeth" as my text, and divide the subject in the following manner:

1st. Treatment when the nerve has been recently devitalized.

2d. Treatment, as in the case mentioned, when the tooth has been dead for some time, but the gums are in an apparently healthy condition; and

3d. Treatment in cases where an abscess exists in connection with the tooth, either closed, or discharging through a fistula.

First, let me describe some instruments that I prize highly for this work. I do not like to use the ordinary barbed broach, such as we usually find at the dental depots. Perhaps it is because I was taught differently, and feel inclined to follow that line of practice which in other hands has proven so successful. I obtain what are known as Swiss Pivot Broaches. Jewelers use them for reaming out the little holes in their fine work. I generally get as fine as 0 or 00. They are hard temper, so hard that they break very readily, and will burn if put at once into a flame, but by drawing the temper carefully they can readily be bent in any direction, and will follow a very crooked canal. In connection with these I use unwaxed dental floss silk, which possesses the advantage over cotton of giving a long, delicate fibre, which is not easily broken. This I wind around the broach, when it is ready for use. As these broaches are four-sided, silk is readily attached to them. I prefer to use carbolic acid crystals rather than creasote.

To refer to the treatment:

When the nerve has recently been destroyed, no matter how, I use one of these smooth four or five-sided broaches with this delicate wisp of floss silk upon it, gently insinuate it up the canal as far as I can, twist it dexterously, when the floss silk will entangle the nerve and wrap it around the broach, and, in a majority of instances, bring it out entire. The bleeding that follows will soon cease. I then use a number of these broaches with more or less silk wound on them, according to the size of the canal, to wipe out all moisture, and dressing with carbolic acid, seal it up tightly. I see the case in two or three days; usually it may be filled at this sitting, but in some instances I close it up the second time and fill

at the third sitting. Very rarely do I find it necessary to make more than the third appointment. In cases where the broach and silk fail to bring out all the contents of the nerve canal, I use Donaldson's nerve instruments, and with the little hooked end endeavor to break up the portion remaining in the tooth. These cases are the ones apt to need a third sitting.

When the tooth has been devitalized for some time, as in the instance above mentioned, if the nerve remains in the tooth in an almost semi-liquid condition, really putrified, the broach and floss will invariably bring it out intact, while the barbed broach will often break it into pieces. I use the broaches in the same manner as before to cleanse out the canal thoroughly, taking care not to go through the apical foramen. It may be necessary to use a great many broaches, but I find that they cleanse the canal more thoroughly than bibulous paper, when twisted into strings, can possibly do. Having thoroughly cleansed the canal, I use a broach with floss silk as a piston, and pump some dilute carbolic acid up the canal. Usually I dilute with glycerine, as it has wonderful penetrating properties, and will carry the carbolic acid well up the tooth canal. I then close up the canal with cotton, loosely packed. In this division I spoke of the gums being in an apparently healthy condition. The treatment above described may produce a state of affairs such as exists in the next division, but generally it will not, and if at the second sitting no trouble has been experienced I again cleanse, using the broaches and carbolic acid full strength, and close the canal tightly, usually sealing it with gutta percha. Sometimes it may be necessary to renew this dressing on several occasions; sometimes only a few sittings are needed. I am not now prepared to say whether we do not oftentimes treat a tooth too long. That question, I think, will admit of some close observation at least.

When an abscess exists, I prefer, if there is no fistulous opening, to make one, and then, cleansing the canal as before, to pump pure carbolic acid through the apex, or force it through with one of Farrar's syringes. If it comes out of the fistulous opening on the first attempt, the case is dismissed in a very few days. If it does

not come through, it may take a little longer, but in either case I close up the canal tightly, and at the second or third sitting proceed to fill the canal, after which, if the fistula still exists, it may be healed by one or two injections of carbolic acid through the opening by means of a Farrar syringe, always providing there is no necrosed condition. That forms a subject by itself.

Having now reached the time for filling the canal, I use the broach with the floss silk again. Dr. Watkins ably described my method at our last meeting, which method is really not mine, but that which with Dr. Watkins and others, I heard Dr. McKellops, of St. Louis, describe some years ago. I use gutta percha dissolved in chloroform, either the pink of the laboratory, or Hill's stopping. Using the broach as a piston, this solution can be readily pumped up the canal to the apex. I have some rolls of gutta percha, about the size of a broom splint or fine broach, prepared and cut into lengths of one-fourth to one-half inch. These strips can be introduced and forced up with fine untempered instruments, readily uniting with the solution in the canal, and completely filling the root. In teeth having straight or nearly straight roots this is very easy, and it is my experience that it is the surest method in any case, as the solution can be forced into the most tortuous canals, and will fill them completely.

I have used oxide of zinc with creosote, following it and crowding it up the canal with phosphate of zinc rolled, as in the case of the gutta percha. Before that I used cotton saturated with carbolic acid at the apex, packing gutta percha or phosphate of zinc in the canal. I have used cotton dipped in oxy-chloride of zinc, which hardened in the canal. I primarily taught, and for many years practiced the filling of canals, whenever practicable, with gold, but I have had better results and feel better pleased with the gutta percha method.

My preceptor, Dr. R. M. Stenlee, of New York City, whom I had hoped to see to-night, taught me one thing thoroughly, viz: "whatever is worth doing at all, is worth doing well," and to that I owe much of my success in the treatment of devitalized teeth. But sometimes the result is unsatisfactory; the abscess, like the

ghost in Hamlet, will not down at the bidding. As soon as the tooth is closed it begins to trouble the patient. In such cases, experience, patience and care will bring about the desired result in time. My chief annoyance has been when the tooth presented for treatment has never given any trouble, but is unmistakably dead. I open it carefully and treat it tenderly, and perhaps in a day or two have the patient return with periostitis and inflammation, and the mischief to pay generally. This condition does not arise from forcing foreign matter through the foramen, because it frequently happens when nothing has been done save to open the pulp chamber without entering the canal at all. I have not yet been able to find the reason for this, although it annoys me excessively.

I desire to say regarding the first division of my subject—treatment of recently devitalized teeth—that I rarely destroy the pulp intentionally, and have not done so more than twice during the past year. I then employed the usual arsenical preparation. I invariably attempt the salvation of exposed pulps when there is a reasonable hope that I shall be successful. The pulp once dead, however, I believe in careful and persistent treatment, for I believe that no diseased tooth is beyond salvation if it be judiciously handled.

On motion of Dr. J. Allen Osmun, of Newark, a vote of thanks was tendered Dr. Palmer for the paper of the evening.

Dr. Palmer then exhibited some teeth prepared and filled by Dr. Watkins, of Montclair, which clearly showed how the pink gutta percha might penetrate the canal. He also exhibited a number of the broaches used, showing how readily they could be bent in any direction, winding floss silk upon them to demonstrate his method. He explained the manner of drawing the temper by simply imbedding the broaches in a quantity of asbestos, or sand, and after heating thoroughly, allowing them to cool gradually. A very small quantity of asbestos between two pieces of sheet iron will suffice. The broaches may be readily obtained of any dealer in jeweler's materials.

Dr. W. Pinney, of Newark, narrated a case in practice, and gave a summary of his experience, corroborating much of Dr. Palmer's experience.

Dr. C. F. W. Bodecker, of New York: Dr. Palmer in his paper asks for information about the treatment of such devitalized teeth as have not given the patient any trouble prior to the opening of the pulp chamber, but which, as soon as this is done, even if no attempt has been made to enter the root canal, develop an alveolar abscess.

In some cases we can open the pulp chamber of a devitalized tooth, clean out the canal and fill it at once, and no trouble whatsoever will follow. In these instances the end of the root is encysted and almost any kind of filling, or even no filling at all, will produce a satisfactory result. In another class of cases, such as those of which Dr. Palmer speaks, we find no encystment, and consequently there is a communication of the pulp canal with the peripheral tissues about the end of the root. These are exceedingly troublesome to treat in the old manner, that is, without proper disinfectants, introduced into the tooth before the pulp cavity is quite opened; and here, in the majority of cases, an alveolar abscess is the result, which, I believe, is caused by contact with the air. For about eighteen months I have been very successful in such cases, and quite a number of my professional friends, who have pursued the same line of treatment, have met with the same results. My proceeding is as follows: I drill a hole into the tooth or filling, toward the pulp chamber, until it very nearly reaches it. I fill this drill hole with a saturated solution of iodoform in ether (about 3i of iodoform to 3i of sulphuric ether) and very quickly, before the ether is evaporated, pierce the remaining septum of the pulp chamber. I then fill the drill hole with a piece of cotton saturated with the iodoform solution, and temporarily seal it. This plug I allow to remain from three to five days before I attempt to clean out either the root canal or the pulp chamber. After this time has elapsed, I remove the temporary plug together with the cotton, render the pulp cavity accessible by making the entrance to the root canal as straight as possible without interfering with the strength of the tooth. I then clean out the pulp chamber by cutting away all superfluous dentine, and thoroughly syringe it out with water. I apply the rubber dam, dry out the cavity with

bibulous paper, and introduce one or two drops of a twenty per cent solution of chloride of zinc. After waiting a few minutes I begin to clean out the root canals, either with Donnelson's nerve extractors, or the smooth broaches referred to by Dr. Palmer. These non-barbed broaches I have used for many years, and I know of no others that I like so well. In canals which are very narrow I renew the application of chloride of zinc once or twice, and then thoroughly wash out the root canal with absolute alcohol, using cotton wound around a smooth broach, until the cotton comes out unstained. I then apply a little of the saturated solution of iodoform in ether, which, by means of a smooth broach, I pump into the root canal. The next step is the filling of the canal, for which there is probably no better material nor method than that mentioned by Dr. Palmer in his paper.

At the meeting of the American Dental Association, held in New York City about two years ago, Dr. McKellops, of St. Louis, read a very able paper on the use of gutta percha in root fillings, which, it seems, has made a very deep impression upon many other dental practitioners besides myself. However favorable this material and method appeared to me then, I could not make up my mind to adopt it without first experimenting with it out of the mouth. I took two roots of lower bicuspid which had just been extracted; I removed everything out of the canals by means of a burr, after which I filled one of these roots with a solution of gutta percha in chloroform, followed by hard gutta percha without any further delay, but the other root canal I thoroughly washed out with absolute alcohol, and dried with bibulous paper and the hot air syringe, before the gutta percha was introduced. After two or three days, when the filling material was quite hard, I split both of these roots and found by placing them under the microscope that where I had used absolute alcohol for the dehydration of the dentine previous to the introduction of the filling material, the dentinal canaliculi were filled a little distance with gutta percha, whereas in the other root I could not see any gutta percha at all in the tubules. This result induced me to lay aside all other filling materials for filling root

canals. I had considered gold the worst material for filling root canals, and up to this moment my experience is the same.

Dr. Palmer states in his paper that sometimes we may extend the treatment of pulpless teeth too long. I believe that when the pulp canal is thoroughly cleaned it should be filled immediately, unless a latent abscess is present. A failure in the result of the treatment of the teeth as above described is extremely rare, except where roots are inaccessible or curved.

Dr. G. C. Brown.—About three months ago I met with a very interesting case which was referred to me by Dr. Palmer, of New Brunswick. The patient had been under his care for about a year, when she removed to Elizabeth, and was thus placed beyond the reach of his treatment.

The trouble is of long standing and arises from the right superior canine, a dead tooth which has been filled a number of times, but from which in each instance the filling soon had to be removed because of the soreness and inflammation which supervened. I found a large pulp canal in an apparently healthy condition. I placed in it a dressing of iodoform and closely sealed the cavity. The next day the patient returned with the complaint that she had suffered excruciating agonies with the tooth, and, finally, to obtain relief, had removed the dressing. The cessation of pain was instantaneous. I made a very careful examination and after considerable difficulty succeeded in bringing to light a piece of a wooden toothpick about a quarter of an inch in length. The removal of this was followed by considerable hemorrhage. Thinking I had discovered the source of the trouble I sealed the cavity up again, with precisely the same result as before, and in this condition it has remained for three months. I cannot insert in the canal a small bit of cotton without inducing an excessive pain.

Dr. C. F. W. Bodecker.—When an alveolar abscess either by neglect or overtreatment has become chronic, it becomes very refractory to treatment unless handled energetically. In the majority of these cases necrosis is one of the inevitable results, and we can effect no cure until the sequestrum, however small it may be, has been removed, either by nature, by encystment, or by mechanical or

chemical means. The case referred to by Drs. Palmer and Brown is one of this class, and in my opinion has been treated too long. From the description of the case I should advise the thorough cleaning, disinfection, and filling of the root canal; and if any more trouble arises, an incision should be made into the gum just above the end of the root. Through this opening everything necessary can be done. If a piece of necrosed bone is present it may be removed when loose, by a pair of fine tweezers. If no separation has as yet taken place, the removal of it by the burr may be justifiable. If a latent abscess is the cause of the disturbance it may be destroyed by the burr, the galvano cautery, nitric acid, or chloride zinc, either of which will produce the desired result.

Dr. J. Allen Osmun.—I would like to ask Dr. Bodecker how he would account for the following case: A gentleman presented himself with a right lower molar, which had been treated by another dentist previous to coming into my hands. Creosote, carbolic acid, salicylic acid, and iodoform had been used at different times with the following results. When all pain was under control the tooth was filled temporarily, and remained quiet from six weeks to three months, and then the pain would recur, although I am confident that I went to the apex of the root.

Dr. Bodecker.—I believe if the root canals had been filled permanently at the first or second sitting, the pain would not have recurred.

Dr. M. L. Rhein.—Mr. President, I would like to say a few words regarding this joint patient of Drs. Palmer and Brown, and in doing so I may throw a little light on the case in question. I can more easily illustrate what I want to say by citing a somewhat similar case, and giving my treatment thereof.

In April, 1882, Mr. H., aged about 33, came to me to have his mouth put in a healthy condition. By May 1st, I reached the superior right canine. The tooth had been, as he expressed it, "nothing but a shell for years," there being very extensive decay on the mesial-approximate and palatine, and on the distal-approximate and palatine surfaces. The pulp had evidently been dead for a long time. He had no remembrance of ever experiencing pain in

the tooth, and there had been no alveolar trouble, as the extensive opening had given full vent to the sewerage present. I prepared the root and found that the decay had so softened the tissues that there was a broad opening to the gum, and the end of the root was necrosed. After a thorough cleansing of the canal, I put in my customary disinfectant, creasote (I was not then using iodoform), and hermetically sealed the cavity. The next morning the patient returned with a sore tooth, and I changed my application. He returned shortly again with the tooth in a worse condition. I carefully syringed out the canal, and put in a compound iodoform application. This was at 6 P. M. The next morning at 8 he returned with his face considerably enlarged, and suffering very much. I removed all applications and allowed him to go with the cavity open until the inflammation had subsided. I had determined to cease treating that root in that manner, but to reach the seat of the trouble through the process. On May 14th I made an opening through the gum as follows. After a local application of chloroform, I plunged the bistoury in the gum to the process, directly over the extremity of the root. Then with the aid of a tampon dipped in aromatic sulphuric acid, the opening was soon enlarged sufficiently to permit me to easily penetrate the process with a very large sized drill, the whole operation giving the patient very little pain. I then used the cross-cut burr to remove the diseased part of the root. This portion of the operation was somewhat more unsatisfactory, as it was impossible to accurately know how much tissue I was removing. Contrary to Dr. Atkinson's teaching, I left the canal open so as to enable me more efficiently to remove the debris of the root by syringing through the tooth. Through the opening in the process I inserted a tent of slippery elm, so as to prevent union taking place. Two days later, on making examination of the end of the root, I still found slight necrotic symptoms. Instead of again resorting to the burr I made use of pure nitric acid. Having properly shaped a pine stick, I dipped it in the fuming acid and applied it directly to the end of the root. This, though taking but a moment, caused severe pain. Another plug of slippery elm was inserted so that the wound might heal from the bottom by

granulations. Two days later I filled the root with gutta percha almost to the neck of the tooth, and sealed up the remaining portion of the cavity with oxy-phosphate of zinc. The plugs of slippery elm were removed almost every day, and smaller ones inserted. By June 4th, the opening in the gum had entirely healed, it being three weeks after the operation, and the tooth was in a perfectly comfortable condition. On July 21st, after cutting out a sufficient amount of the oxy-phosphate, I filled the tooth with gold, inserting eleven sheets of No. 4 cohesive foil, with the aid of the electromagnetic mallet. At this time there was new formation of bone in the process. Not the slightest irritation followed the restoration of the contour.

This case was brought fresh to my memory by the patient calling to see me a few days ago for his yearly examination. At that time I found the tooth just as I left it, with the exception of a slight amount of hypertrophy over the seat of the operation, caused by the formation of new bone. I have detailed this case because I think a somewhat similar treatment is needed in the case mentioned. In conclusion, I would add that I coincide with Dr. Bodecker when he states that the trouble with most of these incurable abscesses is that they are over-treated. Clean your roots thoroughly, disinfect them with iodoform, fill them with gutta percha, using chloroform to make them perfect. If now there should remain a diseased condition below the apex, reach the seat of the trouble by penetrating the process over the point of the apex of the root.

Dr. S. C. Watkins.—Dr. Palmer in his paper refers to my method of treating and filling roots of teeth, which I described at the April meeting of this Society. When a case is presented to me with a diseased pulp I apply arsenic, seal the cavity tight, and dismiss the patient for four or five days. When this time has expired, I remove the pulp as thoroughly as possible. In some cases all of it can be taken out; in others, such as the buccal roots of the superior molars, the mesial roots of the lower molars, all of the wisdom teeth, and very often the first bicuspid when the roots are slender and crooked and the nerve canal exceedingly small, I assert that

the pulp cannot be all taken out to the apical foramen, by any one. When the pulp is removed as nearly as possible, and the nerve canal cleansed with alcohol, either by injections with the hyperdermic syringe or a bit of cotton twisted upon a broach, and disinfected with carbolic acid, the iodoform is introduced in the form of a paste. It is easily pumped into the canal by a few fibres of cotton entwined about a nerve broach. Then I use bibulous paper to wipe out the cavity and take up the glycerine and carbolic acid. When all this is completed, if the medicine has been thoroughly carried to the point of the root, the canal is ready for filling, which I complete at the same sitting, in the following way:

Dissolve pink gutta percha in chloroform. Wind a few fibres of cotton on a stiff broach and dip it in the solution. If the tooth is on the lower jaw, throw the chin well down; if it is an upper tooth, throw the head back and chin up, as far as possible. Then proceed to pump the gutta percha into the canal. Keep the entire cavity filled with the mixture, so that each time the piston is drawn and pressed into the canal, it will force some of the gutta percha ahead of it until the patient gives indications of pain, which is good evidence that the canal is full. Warm a piece of gutta percha and form it into a cone, and force it into the end of the canal; or a bit of cotton dipped into the solution of gutta percha and forced into the canal will drive it ahead, until you can be positive that you have the canal thoroughly filled, no matter how crooked or ill-shaped the roots may be, or how many there are of them. If you have not been able to get all the nerve out you need not lie awake nights worrying about it, for if thoroughly filled in this way it makes but little difference, because the iodoform, if carried through the apical foramen, will disinfect the parts thoroughly, and prevent further decomposition. The liquid gutta percha will flow around any particles of remaining tissue and seal them hermetically. Even the ends of the canaliculi will be filled. If some of the filling should pass through the apical foramen into the tissues beyond, they will tolerate it better than any other material.

In cases where the nerve has been dead a long time and an abscess has formed and opened through the gum, I clean the canal, treat

and fill just as I have described, all at one sitting. If the abscess has no opening except through the tooth, I cleanse thoroughly with alcohol and carbolic acid, or a weak solution of chloride of zinc, then pump iodoform through the canal into the abscess at the end of the root, and close the cavity for three or four days, at the end of which time if there is still pus, or a disagreeable odor arising from the abscess or decayed matter, the same treatment is repeated. If it is entirely aseptic I fill at once.

I have used iodoform for ten months without a single failure, or any pain which lasted longer than twenty-four hours, and I have very seldom been obliged to make more than two or three applications in order to secure the desired result.

When the pulps of the temporary teeth are exposed, I make a bowl around them of gutta percha and fill it with iodoform paste, and fill the remainder of the cavity with whatever seems suitable for the occasion. When the pulp is dead I clean out the cavity, and the dead pulp and decayed matter from the pulp chamber, place therein some iodoform and fill with oxy-phosphate, or gutta percha. My experience has taught me that it is a perfect cure, and it may all be completed at one sitting.

The prescription for the iodoform I took from Dr. Bodecker's paper on the minute anatomy of the teeth, which he read before the Odontological Society, in March, 1882. It is as follows:

R Iodoform,

Kaoline, aa—3 ss.

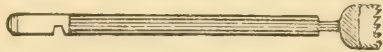
Acid Carbolic, gtt viii.

Glycerine to form a paste.

Add Oil of Peppermint, gtt x.

Dr. H. W. F. Buttner.—At the last meeting of the New Jersey Central Dental Association in Hoboken, January, 1883, Dr. James G. Palmer, of New Brunswick, asked my opinion as to the practicability of setting artificial crowns on natural roots containing a live pulp. Although I had made very few experiments in this direction, I assured him that I was thoroughly convinced of the practicability of an operation of that kind, and would perform it

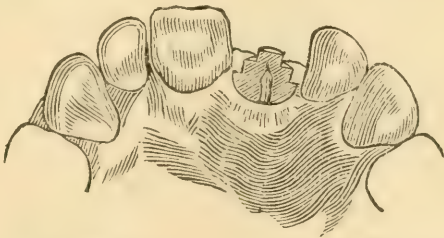
at the earliest opportunity. Dr. Palmer then requested me to set a left upper central crown on a root with a live pulp. The following is a concise description of the case: A young man, about 22 years of age, had lost half of his left upper central incisor by a blow. Although very near, the pulp was not exposed. The patient had the lost part artistically restored with gold, and the anchorage made as strong as the case would admit. The acclusion being unfavorable the apex soon gave way under the pressure of mastication. The lost part was again restored, with a view to increased strength, and although this operation was seemingly a perfect success, the patient and his friends were dissatisfied because of the large amount of gold displayed in the mouth. Unfortunately the tooth was again broken by an accidental fall. The patient now came under my care, and the case presented a rather unfavorable appearance for the application of my method. If the stump had been shorter, a single trephine without a centre pin, would have sufficed to cut a circular shoulder, which would



have been sufficient to sustain a circular gold cap without a central pin or pivot. But in this case the stump was too long, and another course had to be pursued. I constructed an especial instrument, adhering strictly to my trephining system. It presented the appearance of two trephines, a small one inside of a larger one.



The former was intended to turn a circular shoulder on the extreme part of the stump, about $\frac{3}{32}$ of an inch deep. The latter turned a circular shoulder on the upper part of the stump, a little under the



gum. In this way I obtained a double shoulder, one above the other, without in the least endangering the vitality of the pulp. An

impression was taken with plaster of paris, and a model cast. Although the latter showed the relation of prepared stump and other parts clearly, I found it necessary to use on the model, the same instrument I had used for the preparation of the stump in the mouth, that any roughness of plaster and slight imperfections of the cast might be removed. A gold cap had been prepared, composed of two sizes, a smaller and a larger. The former was intended to encircle the lower part of the stump, the larger the upper part. Both had a depth of $\frac{3}{32}$ of an inch, and were firmly united by solder. Both these caps were smaller in diameter than the prepared stump, in order to obtain a perfect joint without cement or other plastic filling material. The gold cap was pressed upon the stump on the plaster model, a plain plate tooth, ground concave on the inner surface and backed with platinum foil, was accurately fitted against the cap in line with the adjoining teeth, then temporarily fastened to the cap with resin, both parts withdrawn from the model, invested together in plaster and sand, and soldered with eighteen carat gold solder, filling out the palatal contour to the natural size. After finishing the cap with porcelain face, the combined parts were driven on the stump by a few blows with a mallet.



Six months have passed by since this operation was performed, and at the June meeting of the New Jersey Central Dental Association I was informed by Dr. James G. Palmer, who has had the opportunity to watch the case, that no trouble whatever has ensued, and that the patient considers it equal to any of his sound teeth. The pulp seems to thrive quite comfortably under the gold cap, and has caused no inconvenience whatever. The attachment is mathematically perfect, and is less liable to fail than the most perfect gold filling, and the root is protected from decay by the gold cap encircling it at the neck.

Dr. C. A. Timme exhibited some very ingenious appliances, invented by Dr. R. Telschow, of Berlin, namely: A hydraulic press, used for stamping metal plates; a very small furnace for backing

continuous gum, which is heated by ordinary coal gas; a pneumatic mallet driven by a pump, which can be applied to every dental engine; and a mouth illuminating apparatus. (Dr. Timme will give a clinic with these appliances, at the State Society meeting, to be held at Asbury Park, July 18th).

On motion, the Society adjourned to meet in June, at Dr. W. Pinney's, 72 Park Pl., Newark, N. J.

JAMES G. PALMER,
Secretary.

SIMPLIFIED TREATMENT OF DISEASES OF THE DENTAL PULP
BY THE USE OF IODOFORM, CARTILAGE AND TERCHLO-
RIDE OF PHENOL.

In the *Deutsche Monatschrift für Zahnheilkunde*, May, 1883, Otto Wahlkoff, of Berlin, publishes two preparations used for treating and capping pulps, and filling root canals. The advantages claimed for the first of the above named materials are, that: "It will be resorbed when in contact with living tissues; it is easily introduced into pulp canals; it absorbs exudations; becomes hard when mixed with certain chemical substances, but is destroyed by pus; is a very bad conductor of heat, and absolutely non-irritant." The material is prepared from ivory, hippopotamus, or bone shavings, or filings, decalcified in a ten per cent solution of chemically pure hydrochloric acid. After all the lime salts are extracted the residue is collected upon a filter, washed, dried and rubbed to a fine powder in a porcelain or glass mortar. Upon this powder ten times its weight of a ten per cent solution of iodoform in sulphuric ether is gradually poured, and constantly rubbed until a fine yellow powder is obtained, which contains about fifty per cent of decalcified bone, and fifty per cent of iodoform.

When used for capping pulps or filling roots this powder is made into a paste by the addition of carbolic acid or ter-chloride of phenol, rubbed together about five minutes, like ordinary cement.

Ter-chloride of phenol was introduced by Dianin of Russia, about a year ago, as the best disinfectant in gangrenous ulcers, "It is

prepared by letting a stream of chlorine gas pass through chemically pure carbolic acid, previously melted, until it acquires a violet hue."

"This preparation," Dr. Wahlkoff says, "is not an irritant, has no acid reaction, and does not destroy the enamel of the teeth." Besides this he recommends the preparation as an obtundent for sensitive exposed necks of teeth, being careful, however, to polish the dentine after the application.

The author claims that with these two remedies he is prepared to meet almost every case of pulp disease. He classifies these diseases in four groups. In chapter one Wahlkoff describes the hyperæmic conditions of the pulp which he treats by applying a cap of iodoform cartilage mixed with ter-chloride of phenol.

Chapter two describes inflamed pulps exposed through caries; here the writer recommends the application of ter-chloride of prenol, repeated every third or fifth day until the patient experiences no more pain, and the pulp, if visible, has a normal appearance. The pulp is then to be capped with iodoform cartilage mixed with ter-chloride of phenol, and the cavity temporarily filled. Wahlkoff states that in twenty cases of pulpitis treated in this manner he only met with one failure.

The treatment of ulceration and gangrene of the pulp consists in the complete removal of all pulp tissues if possible, applications of ter-chloride of phenol into the root canals, and in the sealing of the cavity after the second or third application. Then, if no more trouble arises, the root canals are filled with iodoform cartilage mixed with ter-chloride of phenol.

The instruments recommended for the introduction of the iodoform cartilage, are of whalebone, which every one can make for himself.

According to the author, the preparation of the ter-chloride of phenol would appear to be a very simple matter, but in reality it is well known by chemists, that when carbolic acid is acted upon by chlorine gas, a number of compounds is the result. There are formed a mono, a bi, and a tri or ter-chloride of carbolic acid (phenol), the preparation of which, as well as their individual tests,

will give no end of trouble to an amateur chemist. Furthermore, there is not one, but three different compounds of each of these chlorides. From the paper of Wahlkoff it does not appear which of these agents he has employed. I myself am not sufficiently competent, nor do I wish to pass judgment in matters purely chemical, but I had to refer to these difficulties, inasmuch as I would cordially invite the dental profession to give both the terchloride of phenol, as well as the so-called iodoform cartilage a trial. For it would seem, both from the results of Wahlkoff, as well as the authorities he cites (Sauer, Zimmerman, Barbe, Blume, Koser and Richter), that their properties are valuable. As regards the former, we would leave the preparation to the chemist, and then it would become necessary to fix upon the compound of the chloride of phenol which Wahlkoff has used, and which we are to employ hereafter. It is hardly necessary to say that iodoform *cartilage* is a misnomer for simply decalcified dead bone; the term has, however, the merit of shortness.

C. F. W. BODECKER.

Original Translations and Abstracts.

DENTAL PROSTHESIS.

BY FR. KLEINMANN, OF FLEUSBURG.

In replacing an artificial nose the four following points are to be observed :

1. The impression of the face ;
2. Modeling of the nose ;
3. The making of the same ;
4. The attachment.

I—THE IMPRESSION.

The larger the deficiency, and the more movable the parts are, the more difficult it is to obtain a perfect impression. Dr. Bruck,

who has replaced four artificial noses, suggests the following: "I first take an impression of the defective parts in soft wax, which I afterward place in cold water to harden. Then I pour thin plaster into this wax shape, and softly squeeze it upon the deficiency, holding it in place until the plaster is perfectly hard. I then remove it, and into this mask I again pour plaster, thereby obtaining the natural model of the deformity. In order to avoid the adhering of the impression material to the skin, I give the corresponding parts a thin coat of oil or vaseline, and if a mustache is present I cover it with oiled paper.

II—MODELING OF THE NOSE.

Dr. Bruck justly remarks that the greatest efforts of the artist ought to be directed to shaping of the nose, which must be in accurate correspondence with the face of the patient. There are various ways to accomplish this. Dr. Grohnwald had the model of the artificial substitute made of clay by Professor Sumering, the sculptor. Dr. Bruck procured a man whose physiognomy was similar to that of the patient, and shaped the nose in accordance with that nose. I procured a mask, oiled the inner side, and filled it with plaster. After the plaster had perfectly set I placed it in water, when the mask became detached from the thus obtained perfect model of a face. The nasal portion of this moist plaster model I coated with wax, which after it had hardened could be removed.

III—THE MAKING OF THE NOSE.

Various substances have been made use of, such as wax, pasteboard, leather, parchment, wood and silver, but at the present time rubber and celluloid have the preference. Dr. Lefoulon, of Paris, about twenty years ago, recommended the casting of a dye and counter dye, upon which a gold or platinum plate might be stamped. The outer surface of this metallic nose was to be enameled to correspond with the color of the face. When rubber is employed the question arises, shall we use hard or soft rubber? Both have advantages. Hartung made a nose of hard pink rubber. Bruck finds soft rubber to be the best material. Zimmer made the nose of pink rubber and had it painted. Grohnwald made an artificial substitute

of celluloid. I have tried both hard and soft rubber, but have decided in favor of the celluloid. After I have fitted the wax nose with its gold spring upon the patient's face, I place the same with its tip downward in a vessel containing cotton, and then fill the inner part of this wax nose with thin plaster. After the plaster has become hard I invest the whole in a flask, putting the splint downward, and the nose tip upward, then filling up the rest of the flask in the usual manner. After the wax has been washed off I place a previously pressed celluloid nose in its place, and close the flask. In order to give the outer surface of the nose a rough appearance, a piece of linen is laid between the plaster and outer surface of the celluloid nose. I do not polish the nose, as the paint will adhere and keep much better without it. The making of a nose of soft rubber is, according to Dr. Bruck's system, a little more complicated. Upon the model he presses unvulcanized rubber, imbeds and vulcanizes it. This so formed hard rubber nose is to be accurately finished and fitted, in accordance with the patient's physiognomy. To obtain the soft rubber nose imbed the hard rubber one in plaster in the same manner as above described, but use a little alum that the plaster may set very hard. Grohnwald vulcanizes soft rubber for thirty minutes. The coloring of the nose he leaves to an artist.

IV—THE ATTACHMENT.

The most natural and at the same time the best attachment, is by means of an obturator, as in the cases related by Hartung and Grohnwald. In most instances, however, we have to depend for the support upon a pair of spectacles. Zimmer, besides the hold obtained by the spectacles, applies a pair of hard rubber strips. My method, which I consider new, is as follows: a splint or spring, about two inches in length, closely fitting the lateral walls of the anterior nares, and made of hard gold wire about one millimeter in thickness, is fastened on the inner side of the nose tip. The posterior extremities of the splint are bent into eyelets, which, when in position do not quite reach the posterior nares. The thin margin of the celluloid substitute held in position by this spring, soon imbeds itself into the tissues upon which it rests. The nose, together with

its surrounding skin, is then coated with collodion, which imparts to it a very life-like appearance. The attachment by collodion alone is not safe, as Dr. Grohnwald had a patient who lost a nose by sneezing, which had been attached in the above manner.

A CHRONIC COMPLAINT.

Dr. Grohnwald's reflector has been accepted favorably in America, but instead of giving due honor to the inventor, they have "improved" it by adding a semi-circular piece of tin as a shade in front of the lens, and now the reflector is called an "American invention." Perhaps we will soon have this latest novelty imported into Germany, and it would not be a surprise to see it extensively introduced at an increased cost, because otherwise our Germans would not buy it. And this reminds us of many things which Germans only purchase after they have traveled through France, England or America. For instance, nail-files and scroll saws are shipped to England, returned at double the price and thus sold. Another anomaly of this kind is the mouth mirror manufactured by Messrs. Gessell Bros., of Berlin. These instruments with an ebony handle are thrown upon the market at m. 1.50 (38 cts.) The firm sends them to Philadelphia in lots of 1,000 at m. 1 (25 cts.) a piece; the dental depots of that city sell them to English firms, and from these again they are sold to German depots at m. 7.50 (\$1.87) a piece. *Semper aliquid haeret.*—*Zahntechnische Reform.*

The honors are easy as between the old world and the new. We could instance many articles, the product of American genius, which are sold in Europe as of home invention. Snow's Saliva Ejector was not only stolen bodily, but insult was added to injury by copying the very illustrations and recommendations first used here, and thus were deceived the very elect, for the American Editor of Coleman's Surgery and Pathology borrowed the cuts and paraded it as a foreign invention.

For years the silvered and ground glass for the more popular styles of mouth mirrors were imported into this country by American manufacturers, who then mounted them and supplied handles in different styles, exporting them again to Europe, at, of course, an increased price. No mounted mirrors of this style were ever imported here, those of entire German manufacture selling in this county at about five dollars apiece.—[EDITOR.]

Editorial.

THE BLESSED DOCTRINE OF REST.

There are few practitioners, either general or special, who sufficiently recognize the therapeutical value of repose from labor. It is the very corner stone upon which rests the *vis medicatrix nature*. All nature has its alternate periods of activity and quiescence. Plants rest at night, many of the higher orders closing their petals or folding their leaves at nightfall only to open them again at the bidding of the morning sun. In addition to this they have their seasons of growth, and their winters of stillness. Even in tropical climates, where there are no chilling frosts to freeze the sap in their branches, deciduous plants drop their leaves and fall into slumber at stated periods of the year, to wake again with their energy renewed when they are sufficiently restored.

In man, as in all animals, the reparative process—the elimination of the effete and assimilation of the new—takes place mainly during rest. Deprive a man of sleep and he becomes weak and emaciated. Give him rest and he grows, and waxes strong. Infants require a great deal of sleep because growth is then most active. In mature life the greater the amount of exertion the longer should be the period of rest. The man who sleeps well transacts more business and does it better than he who at night vainly tosses upon his weary bed. Illness is in a large measure but the lack of necessary repose, either in an organ or of the whole system, and the successful physician is he who recognizes this fact and makes proper use of that knowledge. The hackneyed *vis medicatrix nature* is, after all, that upon which we must mainly rely for curing disease, and nature can only exert her healing powers during a condition of rest. In truth, she enforces this doctrine and enjoins repose in an exhausted or injured organ, by a soreness and tenderness which forbids use. The wounded animal holds up the hurt leg, and the lame horse refuses to move, or favors his weak limb by halting and limping in his gait. The broken arm is placed in a sling by the judicious surgeon, not alone that the bones may have an opportunity to knit by being kept in contact, but that the reparative

process may be induced and hastened by the complete rest which is secured.

The value of a prolonged course of athletics has been seriously questioned by some authors, because it was stated that while such exercise strengthened certain organs, it weakened others. It was noticed that in the English universities, many of the students who were members of the boating and cricket clubs were the victims of a sudden death. Numbers of the most stalwart and robust of the graduates, those who had, it was supposed, cultivated their bodies to the very highest point of physical perfection, died soon after graduation, of heart disease. So persistently had they trained and exercised themselves during the latter part of their undergraduate term, in anticipation of the matches which occurred simultaneously with their last commencement, that the heart had been overworked, had not been given sufficient opportunity for the partial rest which was necessary to its perfect function, had become hypertrophied, had weakened, and finally failed because of a lack of sufficient repose for recuperation. The observation of these truths has resulted in an entire change of the method of training for athletic contests.

To the dentist, a consideration of these facts is of importance, because there is many an ill which only needs the application of this doctrine of rest to afford entire relief. We have known those who were great sufferers from oral diseases because of their continual chewing of gum. Many of the dental ills of persistent tobacco chewers arise from their almost continual use of the organs of mastication. Some of the very worst cases of exostosis, of irritation and calcification of the dental pulp, of hypertrophies and absorptions which we ever met, were in the mouths of this latter class. Except in the later stages of dental irritation, the teeth of tobacco chewers are usually very firmly set in their sockets, the result of hypertrophies induced by over exercising the jaws and teeth. Later on, the tissues gave way under the inordinate labor, and absorption of the alveolus with denudation loosening and final falling out of the teeth succeeds. When this last stage

threatens, it may frequently be aborted by leaving off the use of tobacco and giving the jaws comparative rest.

When a part of the teeth are lost, extra labor is usually thrown upon those which remain, and dental irritation inevitably follows sooner or later.

It is not very long since a gentleman consulted us upon a soreness with persistent gnawing pains in the teeth and their investing tissues of one side of his face. An examination showed that the only ones which occluded in such manner as to afford him a good masticating surface were the second and third molars of the left side. He was fond of hard, solid food, and mainly subsisted upon it, and these teeth showed indication of the hard usage to which they had been put. A partial set of artificial teeth was made for him, which antagonized with others of the natural ones in such a manner as to prevent the occlusion of the lame teeth, by not allowing the jaws to be sufficiently closed for that purpose. In spite of the annoyance of the plate he persisted in its use for two months, when all signs of pain and irritation had departed, and he was advised to leave it out. Certain other teeth were filled and their lost contour so restored as to partially relieve the formerly overworked organs, since which time he has had no return of the annoyance.

Another case was that of a man upon whose bicuspid on one side the whole burthen of labor was thrown. He was advised to change his diet to one less difficult of mastication, that partial rest might be secured, and this was followed by almost immediate relief.

Severe periodontitis has been relieved by moulding warm gutta percha about some of the teeth on each side the affected one. When cool this was removed and trimmed to proper shape, and then replaced to act as a block to prevent the occlusion of the sore one until it had a chance to recover.

Instances of the application of this doctrine of rest in dental practice might be multiplied indefinitely, but the intelligent reader who has been patient enough to follow this far will scarcely need them. He will understand to what cases the law is applicable, and not confound them with those in which teeth are being lost through absolute lack of exercise.

THE AMERICAN MEDICAL ASSOCIATION.

There is nothing about which men quarrel so persistently and bitterly as over questions of morals and ethics. The truth of this is abundantly demonstrated by the present controversy between the two factions into which the medical profession in this State is now unfortunately divided. In the May number of the *INDEPENDENT PRACTITIONER* we expressed the opinion that the only way in which the differences of opinion which had even then degenerated into an altercation could be satisfactorily settled, was by an appeal to the American Medical Association, provided there could be a full and fair expression of professional preferences. But that august body has not chosen to hear the other side at all. At its late meeting it took the unheard-of step of requiring all permanent and delegate members to sign a declaration binding them to maintain the old code of ethics, and refusing a seat to all who would not thus pledge themselves in advance.

It is quite legitimate to make new members promise a compliance with the rules and regulations of the body to which they seek admission, but to endeavor to force old members to sign such a declaration under duress, savors rather too much of the fagot and the block. There can be no advance without free discussion, and when this is denied a respectable minority, they are certain to obtain the sympathy of all who hate oppression and tyranny. Reasonable men are not convinced by clubs, and persecution has always strengthened the side of the oppressed, because all candid men love fair play. No one whose mind is open to conviction will consciously promise that his opinion will not change, or that he will not to-morrow take a step which he may then be convinced is an advance. If its code of ethics or any particular method of practice is too sacred for open discussion, medicine will soon find itself far in the rear of human progress. We are not now, nor have we heretofore been, an advocate of the proposed changes, but candor compels the admission that a few such instances of intolerance of question and enquiry will go far toward creating a prejudice against a body that should possess the confidence of every medical man.

TOOTHACHE.

Dr. Guillott claims to have had very good results in the treatment of toothache from the injection of chloroform beneath the mucous membrane of the gum. The effects are more immediate and lasting than those of morphine. There have been no resultant abscesses or inflammation.—*Progres Medical*.

This is a fair specimen of the paragraphs regarding the mouth and teeth which one often finds in foreign medical journals. Supposed-to-be-learned-Professors, with half the alphabet strung to their names like the knotted tail of a kite, will, with owl-like gravity, lofty condescension, and the most priggish air conceivable, inform an anxiously listening world that *aqua camphoræ* is excellent for toothache. It would be quite as definite to say that *sulphate of quinia* is good for illness.

To the dentist the term "toothache" is devoid of anything but a general meaning. There are so many kinds of toothache, and the pains in teeth arise from so many causes, some of which are not at all connected with these organs, that it would seem as if learned writers should not exhibit their ignorance in the manner in which many of them do. Chloroform injected beneath the gum may temporarily relieve an irritable nerve filament without subsequent abscess, but how would it affect a violent case of periosteal inflammation? Tincture of aconite would possibly relieve an inflamed tooth pulp, but of what benefit would it be in a case of exostosis? Toothache, like other pains, is but the symptom of a diseased condition, and all the nostrums sold by quack medicine venders, or prescribed by physicians who know nothing of the pathology of the case in hand, cannot work a cure. There are few intelligent dentists who will not cite numerous instances in which a suffering patient has been under the care of a physician, for weeks perhaps, until in despair he was turned over to the dentist, who wrought a cure in a moment. We have known people who were frightened out of their wits because some physician had long treated an impacted tooth as an osseous tumor. We were once summoned to attend an operation for necrosis, but which a very slight examination enabled us to diagnose as alveolar abscess, with induration. There are no tissues or organs of the body which physicians study

so little as the teeth and their relations, and yet, plentiful as are competent dentists, there are too many who are continually recommending worthless nostrums, rather than to turn them over to the qualified specialist.

A CHANGE.

Dr. Roswell Park, of Chicago, has assumed the editorial management of *The Weekly Medical Review*. A sterling journal will thus have a capable man at the helm, and we desire to extend congratulations and best wishes to both the high contracting parties.

New Appliances and Materials.

THE SANDPAPER DISC CUTTER.

S. G. Stevens, D. D. S., of Lynn, Mass., has devised a very effective and useful implement for cutting the sandpaper and emery discs which have almost entirely superseded the expensive diamond, and the fragile cerundum discs for dentists' use. It consists of a circular steel cutter, not unlike the gun-wad punch, lined with elastic rubber, with a middle point which accurately centres the disc ready for mounting upon a mandrel. The rubber automatically pushes the finished disc out of the cutter, so that it is not broken by efforts to dislodge it. They are made in four sizes, stamping discs, $\frac{7}{8}$, $\frac{3}{4}$, $\frac{5}{8}$ and $\frac{1}{2}$ inch in diameter, respectively. Price \$1.00 each, exclusive of postage when sent by mail.

For holding an assortment of discs of various kinds and sizes, Dr. Stevens uses a pasteboard box, an inch or more deep. Into small bits of soft wood worn out drills are thrust, and these are then cemented to the bottom of the box, and the discs are held upon the extended ends of the drills. Thus there is no time lost in selecting the precise one wanted.

ROBINSON'S FIBROUS AND TEXTILE METALLIC FILLING.

Nearly a year ago some of this material was placed in our hands for trial, since which time we have been employing it with constantly increasing satisfaction, until it has entirely superseded the use of tin foil in our practice. Tin as a material for filling teeth has been too much neglected of late. This material not only possesses all the advantages of that excellent metal, but it has good points that are peculiarly its own. It condenses easily, and gold readily unites with it, so that the advocates of a union of metals in the same filling have here a preparation especially adapted to their wants. For filling large approximal cavities extending beneath the gum, in which the cervical border is uneven or fractured, or those in which it is extremely difficult to prevent the intrusion of fluids into the cavity, a piece of the fibrous filling makes an excellent base upon which to build the gold, for it not only condenses into the inequalities readily, but it enables one to use the slight antiseptic qualities of the material. For the lining of rubber dentures we have not yet had occasion to use it.

Bibliographical.

WEBB'S "NOTES ON OPERATIVE DENTISTRY."

Dr. W. C. Barrett, Editor of the Independent Practitioner.

DEAR SIR :—Certain features of Dr. Webb's book were criticised in your June issue, and the onus for what was considered objectionable was placed upon the publisher. It is only fair to all concerned that the facts should appear.

The agreement to publish these "Notes" was made by letter with Dr. Webb, when he was on his death-bed; made at his request; made on his proposed terms; made for the benefit of his family—his legacy to wife and children; made without question, without modification, and without inspection of the manuscript—indeed, when the matter was perhaps not nearly ready.

The author's copy was scrupulously respected. Every cut in the

book was placed as he arranged it in the manuscript, and without hint, suggestion, or request of any kind from the publisher. The volume as it appears is the work of Dr. Webb, and when you say, "To every portion of the book for which Dr. Webb is responsible we can give unhesitating commendation," you cover its contents from title to finis.

Yours respectfully,

THE S. S. WHITE DENTAL M'FG CO.

[We publish the above according to request, and not because we think there is any necessity for it. The S. S. White Dental M'fg Co. is quite too large a corporation, and is too well and favorably known, to need any shelter behind the tombstone of Dr. Webb.—EDITOR.]

AN ANOMALY OF THE HUMAN HEART.

Dr. Horace Grant, of Louisville, reports in the July number of the *American Journal of the Medical Sciences* a remarkable anomaly of the human heart, interesting not alone from its striking singularity, but as well from its clinical importance.

In a post-mortem examination of a mulatto girl, aged sixteen years, the right ventricle was found to communicate directly with the aorta; no pulmonary artery was to be seen attached to the heart. The left auricle was normal, while the left ventricle presented only one-half the usual attachment of the aorta. In a word, both ventricles opened with equal freedom into the aorta. At the pericardial attachment to the aorta two arteries were given off, each about one-fourth of an inch in diameter; they passed right and left backward from the front of the aorta, and evidently supplied the blood to the lungs. This curious anomaly is discussed in connection with the clinical symptoms observed during life.

Current News and Opinion.

GOOD ADVICE TO TRAVELERS.

Dr. C. W. Chancellor, in a recent letter from Geneva to the *Baltimore Day*, gives the following excellent advice to European travelers :

“ I feel I would be but ill acquitting myself of a duty were I to fail to administer an admonition to those of my compatriots who may one day journey into this land, and I hope they will take heed to what I say, for it is wholesome. I would strongly advise Americans who contemplate traveling upon the continent to be very chary of patronizing physicians recommended by hotel or boarding-house keepers, concierges, porters, etc., etc., without first having inquired of their consul or their banker, or some friend as to the standing of the party recommended, for it not infrequently happens that these parties plot together exclusively as a matter of personal gain, and without any regard whatever for the well-being or interest of those whom they advise.

“ It would be well for persons visiting Europe either to obtain the addresses of competent medical men in the various cities they propose visiting before leaving home, or on their arrival to get advice from some reputable person out of business and above taking a commission, otherwise they may have a tenth-rate doctor introduced as the ‘ former physician to the Emperor,’ the ‘ chief of the hospitals,’ the ‘ doctor of the American Legation,’ or some other high-sounding but fictitious title, and they may be left in his hands to be robbed, maltreated, and perhaps murdered.

“ Travelers, in fact, should make it a rule to take any other physician than the one proposed by a landlord or concierge or courier, unless the medical man thus recommended be a compatriot, or is endorsed by some disinterested person ; and they should insist upon having the doctor of their choice—if they have a choice—really sent for, taking no excuse for any delay or neglect in regard to the matter.

“ There are reliable and veritable American physicians in nearly all of the large cities of Europe whose addresses can readily be found

by consulting the *Directory*, which is in the office of every respectable hotel, or by inquiring at the nearest drug-store."

[This advice is as applicable in the selection of a dentist when his services are needed, as in the choice of a physician.—EDITOR.]

NEW JERSEY STATE DENTAL SOCIETY.

The thirteenth annual meeting of this Society will be held at the Coleman House, Asbury Park, commencing Wednesday, July 18 1883, at ten o'clock, and will continue in session until adjournment.

PROGRAMME.

1.—Annual Address by the President, Dr. J. G. Palmer, New Brunswick.

2.—The Different Preparations of Gold for Filling Teeth. By Dr. George C. Brown, Elizabeth.

3.—Æsthetic Dentistry. By Dr. E. Harvey Bunting, Newark.

4.—The Legal and Moral Responsibility of Dentists in the Administration of Nitrous Oxide Gas. By Dr. J. Allen Osmun, Newark.

5.—*Lobelia Inflata*, as a Therapeutic Remedy. By Dr. J. W. Scarborough, Lambertville.

6.—Filling Teeth, and the Philosophy thereof. By Dr. J. Hayhurst, Lambertville.

7.—Volunteer Essay. By C. W. Meloney, Camden.

8.—Volunteer Essay. By Dr. Harvey Iradell, New Brunswick.

CLINICS.

Dr. C. A. Timmie, Hoboken. Exhibition Hydraulic Compressor for Swaging Perfect Metal Plates in five minutes.

The Berlin Continuous Gum Furnace for Baking Continuous Gum Sets in thirty minutes.

Dr. C. F. W. Bodecker, New York. Stereopticon Exhibition on Screen, Descriptive of the Anatomy and Pathology of Tooth Tissue.

Dr. E. Slegel, Reading. New Method of Inserting Crowns.

Dr. F. W. Buttner, New York. Dr. Buttner's Artificial Crown.

Dr. W. C. Gardinere, Marseilles, France. New Cast Metal Base.

THE AMERICAN DENTAL ASSOCIATION.

The twenty-third annual meeting of this Association, which meets at Niagara Falls, on Tuesday, August 7th, will be held in one of the parlors of the International Hotel. The "Pavilion" in the Park, could not be secured for the purpose, and the committee having the matter in charge has thought this preferable to again renting the unsatisfactory Grant's Hall. Reduced rates have been secured at both the International and Cataract Houses, as well as at all places of interest where an entrance fee is charged. All the principal eastern and western railways will grant round trip tickets for one fare and a third, but to secure this reduction of rates an application for a certificate of membership must be secured from Dr. Geo. L. Field, Detroit, Mich. Those wishing such certificates should make application as early as possible.

GEO. L. FIELD, }
F. M. ODELL, } *Committee.*
T. T. MOORE, }

AMERICAN SOCIETY OF MICROSCOPISTS.

It is unfortunate that the sixth annual meeting of this Society was called for the same week in which occurs the meeting of the American Dental Association, as this will deprive a number of members of the privilege of attendance. The meeting will be held in Chicago, commencing Tuesday, August 7th, and will continue four days. The President is Prof. Albert McCalla, of Fairfield, Iowa. The Secretary is Prof. D. S. Kellicott, Buffalo, N. Y.

AMERICAN DENTAL CONVENTION.

This Society will hold its next annual meeting at Saratoga Springs, on the second Tuesday of August, 1883. A large attendance is expected, and a number of interesting papers are already promised.

A. C. RICH, *Secretary.*
Saratoga, N. Y.

NOTICE TO STATE BOARDS OF EXAMINERS.

There will be held at the Cataract House, Niagara Falls, on Monday, August 6th, 1883, at 2 o'clock P. M., a meeting of all the State Boards of Dental Examiners, for the purpose of perfecting the organization of a National Association of Examining Boards. It is hoped that every Board will be fully represented.

GEORGE H. CUSHING,
Secretary of Conference held at Lexington, Ky.

MAINE DENTAL SOCIETY.

The Maine Dental Society will hold its eighteenth annual meeting in Portland, on Tuesday and Wednesday, July 17 and 18, 1883.

D. W. FELLOWS, *Secretary.*

Selections.

DROPSY OF THE ANTRUM.

Richard W., aged 10, was first brought to me for advice in the beginning of October, 1881, in reference to a fullness of the left cheek and prominence of the malar process on that side. He was a delicate-looking lad, belonging to a somewhat strumous family, but had enjoyed fair health up to the present. During the previous winter he had been hit by a hard snowball on that cheek, of the effects of which he had complained for some time; and early in the spring he had received another severe blow on the bridge of his nose, which his mother at the time thought had dislocated the nasal bones. I saw him, however, on the next day, and could not then make out any displacement.

His mother referred the present trouble to these injuries. The fullness had been first noted some six weeks previously, and had been gradually increasing since. At the time of her visit it was very evident on inspection. On examination there was found to be marked bulging of all the anterior wall of the antrum. The

child was in good health otherwise. There was no difficulty in breathing through the nose, nor any sign of tumor in the pharynx or nasal cavities. I saw him at intervals during the next six weeks, during which the fullness slowly increased, but no softening of the bone was discovered. I now asked Dr. Roddick to see the case with me. He agreed with me in regarding it as due to pressure from within the antrum. On careful examination this time, now eight weeks after date of first consulting me, limited softening and slight fluctuations could be detected on the root of the second bicuspid tooth. His health otherwise remained good. The following week fluctuation was quite evident over the roots of the canine and the two bicuspids, and crackling of the thinned bone was felt distinctly. A puncture with a scalpel was made over the root of the first bicuspid, and about 3ij of glairy, colorless fluid escaped, with relief to the local tension. This again shortly accumulated, and five days afterwards the whole facial surface of the bone was pliable, crackling under pressure, and the hard palate on that side for about half an inch back from the alveolar process was bulging.

The lad was taken to the office of Mr. Alf. Wright, dentist, who carefully removed the canine and two bicuspids on the affected side. Their fangs were almost absorbed. The alveolar process was soft and crumbling, so that care had to be taken to injure it as little as possible. With the removal of the teeth a large quantity of glairy fluid escaped from the antrum through the opening thus made into its floor. Mr. Wright afterwards made a plate supporting a hard rubber tube, about the diameter of a goose quill, which passed into the cavity through the opening made by the first bicuspid, and kept it drained. A lotion of carbolized water was also given to the mother with directions to have the cavity syringed out frequently. With the removal of the pressure the prominence at once disappeared, reducing completely the deformity of the face. The cavity filled up, and now after the lapse of eighteen months there is no appreciable difference between the two sides.

The diagnosis in this case was somewhat difficult at first, and a more formidable tumor of fibrous or myxomatous character at first

feared. The nature of the case was, however, made evident by the first puncture. The injuries the child received probably had a good deal to do with the formation of the cyst, but whether by closing up the aperture connecting the antrum with the nasal cavity, or whether by inducing some morbid change in the mucous glands, naturally existing in the lining membrane of the antrum, it is difficult to say.

After the operation, Dr. Roddick, who was present and whose advice was taken throughout the case, and myself, endeavored to make out the position of this aperture in the nostril, but both of us failed.

A very similar case is quoted by Mr. Pollock in Holmes' Surgery, where the cyst occupied a large portion of the left side of the upper jaw. Its anterior wall bulged out the side of the face. A free incision was made into the cyst from within the cheek. The anterior wall was found to be partly membranous, and partly consisted of thin flakes of bone. A portion was readily removed, so that a free opening was left for the escape of the contents, which were of a glutinous consistence and brownish in color. At the bottom of the cyst there was found projecting into its cavity the extreme point of the fang of the canine tooth. On its removal the fang was found partially necrosed. The cyst filled and closed in a short time without further treatment. The patient was about ten years of age, and when he quitted the hospital there was no trace of disease nor the slightest disfigurement.—DR. A. D. BLACKADER in *Canada Medical and Surgical Journal*.

SENSES IN NEW-BORN INFANTS.

In a recent inaugural dissertation Dr. Genzmer discusses the activity of the senses in new-born infants. *Inter alia*, he says the sense of touch is developed from the earliest period, and reflex actions are readily excited by the slightest stimulation of the nerves of touch, especially that of the face, then of the hands and soles of the feet. The feeling of pain is but slowly developed, and is only

clearly shown after four or five weeks, before which time infants do not shed tears. Smell and taste are not distinguishable in infants. Hearing is perceptible in the first, or at most, the second day of life. New-born infants are so sensitive to light that they will turn the head to follow a mild light, while if a strong glare be suddenly thrown on the eye squinting is induced, and even convulsive closure of the lids. After a few days the child will follow the motion of various objects by movements of its head. Between the fourth and fifth week the convergence of the pupils and co-ordination in vision are perceptible. A distinct perception of color does not exist under four or five months; before then it is quantity rather than quality of light that is recognized.—*English Mechanic*.

SYPHILIS IN THE NINTH CENTURY.

Between the years A. D. 806 and 810, an Emperor of Japan commanded his court physicians, Abemanus and Idzumo Kirotsada, to collect in one volume all extant records of native medicine and surgery. (*British Medical Journal*.) A manuscript copy of this work, for centuries forgotten, although the facts of its origin were recorded in Japanese history, was found in 1827, by a priest, in a provincial Buddhist temple. Dr. Scheube, of Leipzig, has recently examined this work, and, in an article published in a recent number of *Virchow's Archiv* (*Louisville Medical News*) has shown its undoubted authenticity and its high value from a scientific point of view. It was written long before Chinese ideas had penetrated into Japan and influenced native practitioners. The most interesting passages are descriptions of local and general affections, which clearly prove that syphilis and several allied disorders were well known to the ancient Japanese. Chancroid and phagedenic chancre are clearly described, as well as a "swelling on the penis, the size of a millet-seed," followed by eruptions, feverishness, pains in the bones and head, blindness, swelling of the testicles, and other very familiar symptoms. These were observed to continue for many years. The passages of this work, called the *Daidorui Thiu-ho*,

which relates to the treatment of these symptoms, have not yet been translated into English. Herbs alone appear to have been used, and without much success; mercurial treatment was introduced at a comparatively recent date from Europe. The ancient Japanese surgeons do not appear to have recognized the venereal origin of the disease they describe, although the Daidorui distinctly traces all the secondary symptoms to "the poison from the affected organ."—*Weekly Medical Review.*

Popular Science Department.

ARCHEOLOGICAL FRAUDS.

As an illustration of the demand and supply of archeological material, I will call attention to a carved stone representing a naked child about two feet in length, which was said to have been dug up near the Hot Springs in Arkansas. The carving was partly enclosed by a cement, which, it was said, covered the stone when it was found. This was received at the Peabody museum, with its history, apparently well authenticated, describing it as an antique. This piece of carving proved to be a child of the 'Cardiff giant' family. The fraud was unquestionable; and the image was returned to its owner with a full statement of the evidence against it, and the request that in the interest of science the object should be destroyed. Since then I have heard nothing more of it, and in case it has not been destroyed this notice will serve to put others on their guard. This is, however, but one of the many fraudulent specimens offered for sale; and we have received a number of pipes, tubes, dishes, ceremonial and other objects, made in Philadelphia, and sold as having been found in such or such a locality. The variety of these articles made by the Philadelphia manufacturer, and the character of the work are such that many have found their way into collections in this country, and not a few have supplied the foreign

demand for American antiquities. A manufacturer in Indiana confines his attention chiefly to 'mound-builders' pipes,' which are carved from stone, and offered in a systematic method to collectors. In Ohio a large business has been done in the so-called gorgets, cut from blue slate, and in hematite celts. In southern Illinois, a few years ago, many specimens of pottery were made, until the demand fell off so that one manufacturer acknowledged that he was no longer paid for his trouble by their sale. Another man who made this pottery is, I believe, no longer living; but much of his work is still extant. This list might be lengthened; but it is already sufficient to show that the demand for 'antiquities' is considerable in this country, and that we are not behind the old world in keeping up the supply.

F. W. PUTNAM, in *Science*.

CAMBRIDGE, Feb. 19.

BALDNESS.

In an article recently contributed to the *Gesundheit*—a paper, as its name imports, devoted to sanitary subjects—Professor Reclam, a German *Gelehrter*, makes some timely and useful observations on the subject of baldness. After describing, in a vein of pleasantry, the vast array of bare polls which may be seen any evening in the pit of a theater or the body of a lecture-room, he discusses the causes of baldness. He does not think, as is sometimes said, that loss of hair is the result either of impaired health or of much study. The strongest men are often bareheaded, and German professors, who are nothing if not studious, are distinguished above all men by the profusion of their locks. On the other hand, soldiers and postilions, who wear heavy helmets and leather caps, and wear them a good deal, are frequently as bald as billiard balls. From these facts Herr Reclam draws the conclusion that baldness comes chiefly of the artificial determination of blood to the head, and to the heat and perspiration thence arising. The result is a relaxed condition of the scalp and loss of hair. If the skin of the head be kept in a healthy state, contends the professor, the hair will not fall off. To

keep it healthy, the head-covering should be light and porous, the head kept clean by washings with water, and the hair cut short. The nostrums vended as hair restorers, and on which a fabulous amount of money is wasted by the ignorant for the benefit of quacks, he denounces as worse than useless. In ninety-nine cases out of a hundred they are worse than useless. Cleanliness and cold water are the sole trustworthy specifics; but when once the hair roots are destroyed, not all the oil of Macassar, the bear's grease of Siberia, nor the cantharides of Spain will woo back the vanished locks.—*Scientific American*.

THE LATEST THEORY OF SEA-SICKNESS.

Perhaps the most acceptable theory to-day is the one which places the origin of the trouble in the inner ear. The ear consists of three parts: the outer of these runs in as far as the drum; the middle part is inside the drum, and contains the chain of ear-bones; while the inner ear is a complicated affair, containing the essential organ of hearing.

As far as we are concerned, the inner ear is a membranous bag filled with fluid, and situated in the solid bone. From the back part of this bag run out three semicircular tubes communicating at both their ends with the bag or vestibule. These run in three different planes, and are lined with hair-like nerve-filaments, which are much more abundant and more sensitive at the anterior part of the tubes. The tubes are filled with liquid in which float little calcareous particles, the otoliths. These tubes are known as the semicircular canals. It was difficult to see what connection with the sense of hearing these canals could possibly have, and some time ago it was noticed that injuries to these impaired the sense of hearing in no way, but caused most curious effects in the loss of equilibrium.—From "*The Cause of Sea-Sickness*," by R. W. LOVETT, in *Popular Science Monthly for July*.

IMPREGNATION IN THE TURKEY.

An interesting fact respecting our domestic turkey, has recently come to my notice. A friend finding that a stray turkey had come upon his premises with the intention of remaining, finally shut it up in his chicken yard, where it was permanently confined with no other associates than the chickens. The prisoner at once began to lay eggs, and, after a nest was formed, sat upon them, hatching out, in the usual time, nine healthy turkeys. Three others that had been hatched by a hen, soon died for want of care. The eggs, thirteen in all, were laid without any connection with a turkey-cock. An impregnation, then, that must have taken place before the fowl was placed in confinement, must have answered for all the eggs. Agassiz states that one copulation is supposed to answer for more than one egg in the case of the turkey, but adds that the supposition needs confirmation. The facts here mentioned seem conclusive, as there was no possible way in which connection could have taken place after the turkey was confined.

EDWARD M. SHEPARD, in "*Science*."

CARBOLIC ACID AS A LOCAL ANÆSTHETIC.

Dr. A. M. Pelton says, in the *Southern Practitioner*: By the following method abscesses, felons, boils, etc., can be opened with little or no pain. Sharpen to a point a stick about six inches in length. Dip the point into liquified carbolic acid, and apply to the point chosen for the opening. After a moment's delay, cut the skin with a knife; then take a little of the acid on the point of the stick and apply in the incision with a gentle rotary motion. By frequent applications of the acid, and a gentle rotary motion of the stick persistently applied, an opening can be made to the required depth. The carbolic acid produces first anæsthesia, then death of the parts to which it is applied in the foregoing manner.

PROPERTIES OF SALIVA.

Why has human saliva the power of saccharifying starch-paste, while that of many animals, even herbiferous as the horse, has not? Under the prevalence of atmospheric-germ theories, some have been lately inclined to believe that human saliva owes its power merely to the fact that it is a good medium for the development of amylolytic bacterial organisms. Bechamp, as a result of somewhat extended observations concludes: 1°, that the starch-saccharifying activity of human saliva is not due to chance germs which have entered the mouth from the atmosphere; but 2°, is due to a special ferment more active than diastase; and 3°, produced by the action on the pure secreted saliva of specific microscopic organisms living in the salivary glands and in the mouth-cavity of man. The pure parotid saliva of horse or dog does not convert starch-paste into copper-oxide-reducing substances, nor does it acquire this power when exposed to the air, or when gently warmed along with scrapings from the tongues of those animals; but when scrapings from the inside of the human mouth are added to it, it soon becomes a very efficacious agent for the saccharification of starch.—*Arch. physiol. norm. Path.*

POTATOES AS PEN-WIPERS.

A writer in a German paper says that it is the custom in offices in that country to have a sliced potato on the desk for use as a pen-wiper, and to clean steel pens. It removes all ink crusts, and gives a peculiar smooth flow to ink. New pens should be passed two or three times through the gas flame to remove the grease with which they are coated. The ink will then flow freely.

INCUBATION OF INFANTS.

The *Paris Temps* asserts that Dr. Tavernier has discovered means of extending his system of artificial incubation indefinitely, and is successfully applying it to infants born at a comparatively early period of gestation.

LOCALIZATION OF FUNCTIONS IN THE CEREBRAL CORTEX.

From the results of experiments on dogs, Bochfontaine concludes that Flourens was correct in ascribing vicarious functions to the cerebral convolutions. At one time electrical stimulation of a particular surface area a may, for example, be followed by secretion of the sub-maxillary gland or by some definite movement of a limb, while the same stimulus applied to other regions of the cerebral surface has no such consequences. In half an hour or forty-five minutes the region a will, however, cease to react to stimuli, while some other area b , previously inexcitable, becomes irritable, and its stimulation is followed by the same phenomena as previously the stimulation of a . The author suggests that the gray rind is itself not capable of electrical excitation, and that the result is always due to direct stimulation of subjacent medullated nerve-fibres. A bundle of such fibres, all with the same peripheral connection, may subdivide in the brain, and end in three or four different regions of its surface: to this assumption he adds the further gratuitous one, that only one cerebral division of the nerve-fibre bundle is excitable at any one moment.—*Arch. physiol. norm. Path.*

MELTING GOLD.—In melting coarse gold, blow the fire to a great heat and stir the metal with a stick of carbon, or the long stem of a tobacco pipe, to prevent honey-combing. If steel or iron filings get into gold while melting, throw in a piece of saltpeter the size of a walnut; it will attract the iron or steel from the gold into the flux; or, sublimate of mercury will destroy the iron or steel. To cause gold to roll well, melt with a good heat, add a tablespoonful of sal ammoniac and charcoal, equal quantities, both pulverized, stir up well, put on the cover for two minutes, and pour.—*The Jewelers' Journal.*

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THE Independent Practitioner.

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No. 8.

Original Communications.

EXTRACTION OF DECIDUOUS TEETH.

BY N. W. KINGSLEY, D. D. S., NEW YORK.

WHITNEY MEMORIAL PRIZE ESSAY. PRESENTED BEFORE THE DENTAL SOCIETY OF
THE STATE OF NEW YORK, MAY, 1883.

Quite recently there have appeared in the reports of papers and discussions before dental societies, opinions expressed upon the extraction of the deciduous teeth which are so much at variance with the author's experience and observations, that he ventures to put his views in the form of an essay.

The views which he deems erroneous have shown a misconception of the order in which the temporary teeth are shed and their places supplied by permanent ones, and also in the idea which has been entertained that the premature removal of the deciduous teeth caused a shrinkage of the jaw, and created an irregularity in the permanent dental arch.

It would hardly seem possible, in view of the researches of the last quarter of a century, that any educated dentist could hold any other than one opinion, or that it should be necessary at this time to correct any erroneous impressions. Two or three illustrations will serve to show the errors alluded to.

A gentleman of well known eminence in the profession was describing before one of the societies his method of caring for

children's teeth, when he said among other things, "that as soon as there was any evidence of the eruption of a permanent tooth he removed the deciduous tooth to give it room. Beginning with the central incisors, which were the first to make their appearance, if the removal of the centrals did not promise ample room for their successors then he also took out the lateral incisors. If when the lateral incisors emerged there appeared to be a lack of room, he removed the temporary canine—following this, if the permanent canine when it appeared showed a want of space, he removed the first temporary molar, and in like manner, and in their turn according to his plan, the second temporary molar was removed to make room for the first bicuspid, and finally, if there was not room in the dental arch for the second bicuspid he extracted it, and by this course of procedure he was always able to secure a perfectly regular dental arch in the second set, or permanent teeth."

This is the teaching of one who holds no mean place in the estimation of his fellow practitioners.

Another gentleman, occupying also a prominent place in dental societies, says that in his treatment of children's teeth, when the time arrives for the shedding of the temporary tooth he extracts it to give the permanent tooth a chance, regardless of any evidence that the permanent tooth is ready to erupt. He extracts when the period arrives for the permanent tooth to erupt, because he holds that its eruption is retarded by the continued presence of the temporary one. And again, another gentleman whose exalted attainments have been conceded for a generation, maintains that the premature extraction of temporary teeth involves a contraction of the jaws. It is not an error in the use of terms that he makes (using the word jaws when he means alveolar processes), but he refers to a contraction of the jaw bones themselves.

These examples are sufficient to illustrate the object of this paper, for in the opinion of the writer each and all are erroneous.

Beginning with the last, it is a settled fact that the development of jaw bones and alveolar processes are entirely independent operations of nature.

There is a period in the history of the jaw when it is as much a

jaw bone as at any subsequent time, and before a tooth has made any appearance. If through any freak of nature no tooth ever develops, the jaw will in no respect be aborted in its growth. It will continue to thicken and elongate in the case of the lower one, and widen and enlarge in the case of the upper, until it has reached the full measure of its inherited type, and neither the absence of teeth congenitally nor their removal after development will interfere with this function.

But in the growth of the alveoli as a process of the jaw we find an entirely different condition.

Alveolas are the result of the development of the teeth and coincident with their growth. The alveolar processes to a certain extent are constantly changing. It is quite doubtful if a single bony particle of the alveoli of adult life formed a part of the alveoli of childhood.

In a purely physiological condition it is forming and absorbing—forming again and again absorbing—and again a third time forming, only to be absorbed again when the final issue arrives of the loss of the teeth.

In a pathological condition this process of formation and absorption may go on repeatedly.

The mistaken idea of the shrinkage of the jaws must certainly be based upon changes which are apparent in alveolar processes, but which *do not involve the jaw*.

That the premature extraction of the deciduous teeth involves a contraction of the jaws is a mistake, and to a limited extent it is a misconception that such extraction will involve such contraction of the alveolar arch as will induce irregularity, either in the period or order of eruption, or the arrangement of the permanent set. This is true as applied to sixteen out of twenty teeth that make up the complement of the deciduous set.

The order of shedding and of eruption shows that the first to change places are the central incisors; secondly, the lateral incisors; thirdly, *not* the canines, but, frequently the second molar for the second bicuspid; fourthly, the remaining molar for the other bicuspid, and lastly the canines.

In a normal condition the jaw bones *continue* their growth *after* the growth of process about the temporary teeth has ceased, and thus as the period approaches for the eruption of the permanent teeth we find spaces between the temporary ones, thus enlarging the alveolar arch for the accommodation of the larger members of the permanent group.

The growth or enlargement of that part of the jaw upon which the deciduous dental arch is situated seems to have obtained its complete development at the period of shedding, and the incisors and bicuspid will find room equal to their necessities.

The premature extraction of any or all even of these eight named teeth, will not interfere with the natural and expected enlargement of the jaw, but the premature extraction of the canine teeth will be likely to lead to most serious results.

After the jaw bone has ceased its enlargement there seems an almost universal tendency for the bicuspid and molars to crowd to the anterior part of the mouth, and to fill any space in the alveolar arch that may not already be occupied. This is not only true in the formative period, but is equally true in adult life, if the occlusion of the opposing jaw does not counteract it. The consequence of this inevitable tendency is, that unless the temporary canines remain in their places until their permanent successors are ready to emerge, the bicuspid and whatever molars are behind them will crowd forward and occupy the space which belongs to the canines.

We thus see that whatever may be the inducement to remove any or all of the deciduous teeth prior to their period of shedding, the canines should be retained until there is ample evidence of the early emergence of their permanent successors, unless the health and comfort of the child would be sacrificed in so doing. But it would be far better to remove one or all of the deciduous teeth and take the risks of irregularity in the permanent ones, than to submit the child to constant suffering and consequent injury to its health by their retention.

In a case of retarded dentition the writer takes issue with the practitioner who removes the deciduous teeth when the usual period arrives for shedding, regardless of any evidence that the permanent

ones are ready to erupt. His reason is, that the retention of the temporary tooth retards the growth of the permanent one.

In this issue is involved the function of absorption, and his practice would indicate that the non-absorption of the temporary tooth was the primal cause of the retarded dentition, rather than that retarded dentition is the cause of the non-absorption. Cause and effect are in his mind evidently transposed.

Such a practice will unquestionably lead in many cases to serious results.

It is not always certain, when there is no outward indication, that a tooth lies concealed.

It is not a very uncommon thing to see some one tooth of the permanent set missing, and to learn that it never erupted. And again, a retarded dentition generally indicates teeth of better organization and less liable to decay than those which have developed at an earlier age.

So long as deciduous teeth remain in the jaw in a firm and undecayed condition, with no evidence of a misdirection of their permanent successors, it is not advisable to remove them.

A CASE OF SEVERE PURULENT INFLAMMATION OF THE MIDDLE EAR, WITH RESTORATION OF THE DRUMHEAD;
CONSECUTIVE DENTALGIA WITHOUT CARIES.

BY EDWARD S. PECK, M.A., M.D., OPHTHALMIC AND AURAL SURGEON TO
CHARITY HOSPITAL, NEW YORK.

The accompanying case is published for the following considerations:

1st. As an example of restoration of the ear-drum after a total loss of the same, together with a return of hearing.

2nd. To illustrate the anatomical connection between dentalgia and severe purulent otitis media.

Mr. C., formerly known in the west as the builder of an opera house, was attacked in June, 1880, with a severe purulent inflammation of the right middle ear; the left ear was partially deaf from chronic tympanic catarrh. The purulent otitis (right) was

caused by exposure to cold, and was purely consecutive, having followed an acute naso-pharyngitis of ten days' standing. My note-book gives the following statistics: June 6th, auditory canal and middle aural region of right side very painful; canal filled with white, thick pus; on cleansing with cotton there was a complete perforation of the membrana tympani, only a narrow rim being attached to the annulus tympanicus, while the hammer was displaced upwards and backwards nearly parallel with the superior wall of the tympanum. A loud-ticking test-watch, capable of being heard twenty-four feet in a quiet room, could be heard only on firm contact with the ear. The treatment consisted in thorough cleansing with the syringe, hot boracic water, and a solution of sulpho-carbolate of zinc, while a continuous douche of hot water was used to control pain. To the anterior and posterior nares, which were still congested and bathed in muco-pus, a zinc spray was thoroughly used. This regime was continued nearly one month, until on July 2d, the hearing distance on the right side was one-half an inch. The Politzer and dry methods of inflating the middle ears had been regularly used, and the hearing distance in the left ear, previously fifteen inches, had increased to three feet. At this date the aural discharge was nearly stopped. The severe symptoms of pain and tinnitus had disappeared. July 10th, or eight days later, every symptom was less severe; the aural discharge had ceased; the nasal discharge was slight; the perforation was partially covered with new fibrous tissue, and the hearing distance had increased to eight inches by the watch.

No further record of the patient's symptoms was made, as he went regularly to business, and passed from my hands. On November 7th, of the same year, the perforation of the right membrana tympani was entirely healed, with a restored position of the hammer, though not of the light spot, while the new membrane was movable to inflation by the method of Valsalva. The hearing distance in each ear was *five feet* by the watch, and *twenty feet* to a clear whisper. It is a well-known fact to the aurist that there is often a disparity between tests of hearing by the watch and human voice in whisper, the better results accruing to the second

method, while the watch is a more accurate test. The voice is the habitual criterion for the deaf person, whether in whisper or intensified to various degrees.

From the second week of the aural complication until the cessation of discharge and abatement of pain, this patient suffered from toothache referable to the two last molars. No caries could be found, and the teeth themselves were not sensitive to the touch of a steel instrument. The dentalgia was constant, and at times severe.

The study of otalgia associated with dental irritation is an interesting one. Not counting the large class of cases of dental caries, where this factor is the manifest cause of otalgia, examples of consecutive dentalgia with antecedent aural disease of severity are of paramount interest. The explanation is purely anatomical, and is as follows: of the three divisions of the fifth pair of cranial nerves, the inferior maxillary, through its inferior dental branch, is the only one which supplies the teeth of the lower jaw; this nerve is mixed in character, its nerves of sensation passing into each tooth to the pulp, through a perforation in each individual fang. With the fifth nerve are connected four ganglia, of which the otic is connected with the inferior maxillary division, and is the only one with which we are here concerned. The otic ganglion is situated on the inner surface of the inferior maxillary nerve, near its projection from the parent nerve. It sends branches of communication to the inferior maxillary between the two pterygoid muscles, fibres of which communicating branches are carried on to the inferior dental nerve. It also receives branches from the glossopharyngeal, a division of the eighth pair, through the small superficial petrosal nerve, which is continued from the tympanic plexus of the middle ear. In this way the nerve supply of the tympanic cavity is connected with the sensory fibres of the inferior dental by the intervention of the otic ganglion.

THE LEGAL AND MORAL RESPONSIBILITY OF DENTISTS IN THE
ADMINISTRATION OF NITROUS OXIDE GAS.

BY DR. J. ALLEN OSMUN, NEWARK, N. J.

Read before the New Jersey State Dental Society at Asbury Park, July 18th,
1883.

Mr. President and Gentlemen :

I propose to occupy your attention to-day with a brief review of this important subject.

It is not my intention to go into the details of the various methods of manufacturing this agent, or the sources from which it is obtained, or its chemical constituents, or its action on the human system; these are facts which do not properly come within the scope of this paper.

Anæsthesia has been extolled to the skies by many, as the greatest boon that has ever been conferred upon the human family for the relief of suffering during painful and tedious operations, while it is quite as usual to hear it condemned in the most severe language, and by minds of no mean order. That both are absolutely correct cannot be true, for there must be well-founded reasons to lead men of intelligence to such diverse decisions. It must, therefore, be the apparent lack of judgment and knowledge of its effects upon the human economy that is shown in its administration, and of the nature of the agents used to produce this state of unconsciousness in the subject, that bring men to such different conclusions.

Dr. E. R. Squibb, in an address before the State Medical Society of New York, used the following language in referring to this subject :

“The condition of perfect anæsthesia is one of the most grave and frightful conditions of life, and by suspending more than half of vitality it comes so near to death that it is wonderful to reflect how near the boundary line can be approached, and yet so rarely passed. The issues of life and death are narrowed to a few minutes; add to this the fact that it rests with the physician whether to

produce it or not, and it is difficult to understand how its importance can be over-estimated."

The above quotation is from an address delivered by a man who is, perhaps, more able to speak authoritatively than any one else his experience being of the widest extent, and I earnestly commend his remarks to your most thoughtful consideration.

That there is now and then a death from the administration of nitrous oxide is not disputed, and that being admitted it is next in order to see how far a professional man is legally responsible for his actions, and also to ascertain whether there is any difference between the legal and moral obligations, and what these differences may be.

The question of the legal responsibility of a physician, surgeon, or dentist, for unskillful treatment of a patient, is one not easily determined. There are in law no arbitrary rules by which we can fix upon the exact dividing line between absolute mal-practice and simple unskillful professional work.

In the eyes of the law, a professional man is an expert in his particular field, and he must possess a fair average amount of information in his specialty, and use his knowledge in a reasonably competent and skillful manner.

The case of *Lamphier vs. Chipps*, reported in the 34th volume of *Common Law Reports*, is in point. This was a case where the patient sued a physician for damages resulting from an alleged unskillful treatment of a bruised hand. In his charge to the jury Chief Justice Tindal stated the principles by which all cases of this character must be decided, and his remarks are so general that they would be applicable to almost any conceivable case.

The Chief Justice in summing up, after stating the pleadings, said to the jury :

"What you will have to say is this; whether you are satisfied that the injury sustained is attributable to the want of a reasonable and proper degree of care and skill in the defendant's treatment. Every person who enters into a learned profession undertakes to bring to the exercise of it a reasonable degree of skill. He does not undertake, if he is an attorney, that at all events you shall gain your case, nor

does a surgeon undertake that he will perform a cure, nor does he undertake to use the highest possible degree of skill. There may be persons who have higher education and greater advantages than he has, but he undertakes to bring a fair, reasonable, and competent degree of skill, and you will say whether in this case the injury was occasioned by the want of such skill in the defendant.

* * * The question is, whether this injury must be referred to the want of a proper degree of skill and care in the defendant."

Under this charge the jury gave the plaintiff one hundred pounds damages.

From the judge's charge in this case, we see that the question whether an alleged injury is attributable to a want of ordinary skill or care on the part of a practitioner, is simply a question of fact for the jury to determine.

It is well for us just here to inquire what we are to understand by ordinary skill. We recognize the fact that the grade of skill increases with, or in proportion as the delicacy and danger of the operation increases. Ordinary skill in an oculist is more than ordinary skill in a less delicate branch of surgery; and in dentistry such skill is higher as you progress towards the more complex and dangerous class of operations.

The Marine Court of New York lately rendered a judgment against a dentist for an alleged want of skill and care in the administration of nitrous oxide gas.

In this case the judge laid down a slightly stricter rule than that of some former decisions. Briefly stated, the story of the case is this: A patent applied to take gas and have a tooth extracted. The gas was administered, and the tooth was broken in such a manner that part of it dropped down the patient's throat, lodging in the bronchial tubes. It took the man a month to cough it up, during which time he suffered severely.

The court said, that as an anæsthetic deprived the patient of the control of his faculties and rendered him unable to take any precautions or make any efforts for his own safety, the physician or surgeon administering it must exercise the highest professional skill and diligence to avoid every possible danger.

“The professional man, no matter how skillful, who leaves an essential link wanting or a danger unguarded in such treatment, is chargeable with negligence, and answerable for any resulting ill consequences.”

You will at once notice that the latter charge takes a higher ground of responsibility than the other one quoted, and we can easily determine the relation we, as dentists, in the eye of the law, sustain to the public.

It will now be proper to ascertain what are our relations in case of accidents, and how far a professional man is responsible, whether the injury results from his own acts or from those of an apprentice.

The law on both these points is clearly stated by Chief Justice Tindal, in the case of *Hanke vs. Hooper*. The facts in this case may be briefly stated as follows: A man came into a surgeon's office, in his absence, and without asking any opinion as to the advisability of performing the operation, requested an apprentice to bleed him in the arm, saying that such treatment had in the past afforded relief to him from a disease from which he had been suffering.

The apprentice bled the patient, and disastrous results followed.

A suit for damages against the surgeon was brought. In his charge to the jury Chief Justice Tindal said:

“The defendant is responsible for the act of his apprentice, therefore, the question is whether you think the injury the plaintiff has sustained is attributable to a want of skill on the part of the young man, or to some accident.

“A surgeon does not become an actual insurer; he is only bound to display sufficient skill and knowledge of his profession. If from some accident, or from some variation in the form of the disease of a particular individual an injury happens, it is not a fault in a medical man.

“It does not appear that the plaintiff consulted the defendant as to the propriety of bleeding him; he took that upon himself and only required the manual operation to be performed.

“The plaintiff must show that the injury was attributable to a want of skill; you are not to infer it. If a person goes into a sur-

geon's office and asks to be bled, saying that he had found relief from it before, and does not consult the person there as to the propriety of performing the operation, and if there were no indications in the person's appearance that bleeding would be improper, the surgeon would not be liable for the bleeding not effecting the same result as at other times, because it might depend on the constitution of the patient."

In this case the jury found for the surgeon. You will notice that particular stress is laid upon the fact that in the case quoted the patient requested the bleeding to be done, and said he had often obtained relief from such treatment before.

The point I wish to emphasize is this: if a person goes into a dental office and asks for gas to be administered and does not ask advice concerning the advisability of taking it, and should state, to justify the request, that he had often taken it without any ill consequences resulting, one would suppose from the foregoing charge to the jury, that in event of disastrous results the dentist would not be legally responsible.

We all know that there is a wonderful difference in the susceptibility of different individuals, and equal differences in their reparative powers. There is, also, in the same individual at different times, a greater or less power of resistance to disease, and to the lowering of the vitality at different periods of life, and if legally we are not supposed to take these things into account, we are bound by all the moral law to use all necessary precautions, and perform every operation with the same care and careful oversight and attention to details as if we expected each succeeding case to be a variation from the general rule of safety.

In a Pennsylvania case, the patient had previously had a severe fall, which rendered him liable to paralysis, and he was, therefore, not a fit subject for an anæsthetic.

The dentist not knowing this peculiarity, gave an ordinary dose of chloroform, and finding it ineffective gave more, until at length the expected effect was produced and the teeth extracted. But the next day, the patient had an attack of paralysis which his physician

attributed to the overdose of chloroform, and he forthwith sued the dentist.

But the court said that a practitioner is not responsible for remote or unknown causes of injury, or for peculiarities of personal history or condition which are not explained to him.

There are many esteemed legal writers who take quite the opposite ground, and say that no physician should ever administer these dangerous agents without first making examination and inquiry into the personal history.

If a physician should do this, why not a dentist? Human life is just as valuable in the dentist's hands as in the surgeon's.

I will now cite another case to show the nature and amount of proof necessary to render a physician liable for negligence or carelessness. The principle from which this may be drawn is amply shown in the case of *Rich vs. Pierpont*.

Mr. Justice Erle says in his charge to the jury, that "to render a medical man liable for negligence or want of due care or skill, it is not enough that there has been a less degree of care and skill than some other medical man might have shown, or a less degree of care and skill than even he might himself have bestowed; nor is it enough that he himself acknowledges some degree of want of care; there must have been a want of competent and ordinary care and skill, and to such a degree as to have led to a bad result."

Now from these cases it is easily seen that all that can be demanded of a professional man is average, reasonable care and skill, and whenever a question comes up as to whether such skill and care has been exercised, it is a question of fact for a jury.

It will be seen that a professional man is responsible for the deeds of his student or workman, and not responsible for accidents; a point well worth remembering.

The fact of a want of due care and skill must be clearly proved, and cannot be merely inferred.

A professional man is not obliged in law to do his best every time, but must only do ordinarily well. Morally, however, he *is* bound by all that is humane in his nature to use, *every time*, his very best efforts.

The whole drift of the law is to extend to professional men the widest possible leniency consistent with justice, and the sympathies of the court will be with them.

We will now cite another case to show what view the law takes when a professional man of one kind assumes to go into the practice of another.

In an action against a chemist and druggist upon an alleged retainer (as a surgeon and apothecary) to treat the plaintiff for a certain disorder for which mercurial treatment was improper, the charge being negligent treatment, it was held that if the defendant assumed to act as a surgeon or an apothecary he was liable as such, but that these words were not material and might be rejected, the substance of the decision being that he undertook to treat the plaintiff for a disorder and did so negligently or ignorantly; that mercurial treatment in a case for which it was wholly unfit was such negligence or ignorance as would sustain the action.

It is my desire to show by the case just quoted that if we, as dentists, were so unfortunate as to lose a patient when in our chair, under the influence of gas, the question would naturally arise as to our qualifications to administer these agents, and whether we had used all the precautions necessary to insure safety.

The professions of surgery and dentistry were both recognized as distinct callings before the invention of any anæsthetic, and since its discovery nitrous oxide has been adopted by both professions to a greater or less extent, and as its effects and dangers are the same whether administered by a surgeon or dentist, there can be no reason why the members of both professions should not exercise the same precautions in its exhibition, and in the previous examination, or the care of patients during and after its administration. We know that a medical man is not supposed to administer any anæsthetic without knowing by a personal examination the condition of his patient, and if he does administer such an agent without such an examination, and fatal results ensue, he would be amenable to the law. Now, if a physician is liable for the neglect of these precautions, why not a dentist to just the same extent? If we go to Webster for the interpretation of the term

“dentist,” we find that he says “a dentist is one who extracts teeth, fills, cleans, and inserts artificial ones;” but he does not say that the administration of anæsthetics comes strictly within the domain of dentistry. If this be true, when a dentist administers gas he is on the domain of the medical man, and he is supposed, in the eye of the law, to take all the precautions for the safety of his patient that the other would have adopted, and the neglect of any of them would place him in the same situation as it would a physician for the same neglect.

When anæsthesia was first invented a surgeon might have been most skillful, and could have amputated a limb with the highest degree of skill and success; yet if he had administered an anæsthetic without a knowledge of its action on the system, and the patient had died from its effects, it would have been no evidence of lack of skill as a surgeon, but simply of his ignorance of the dangers of this agent, and he would undoubtedly have been held legally responsible for the death of his patient. In like manner, a dentist may be one of the most skillful and dextrous operators in either branch, and yet the fact must be patent to all, that if he administer gas and the patient dies from its effects, he would be held as legally responsible for it as if he was ignorant of the first rudiments of operative or mechanical dentistry.

It would not have been of any use for the surgeon in the supposed case stated to have pleaded his knowledge of the human system, or his acknowledged skill as a general surgeon, for the one question which was pertinent was simply whether his knowledge of anæsthetics was such as to justify his administering them. And, gentlemen, if one of us should ever have a death occur during the administration of gas, the law would be silent as to our qualifications for the filling of teeth or inserting artificial ones; the one question by which we would be judged would be, did he understand this agent and its manifestation on the human system, of the action of the heart in normal and abnormal conditions, of the respiratory organs in like conditions, and had he made an examination to see if they were in a condition to make the administration of this agent safe? This, to a certain extent, is not possible for the average den-

tist to do, and the only line of safety is to demand of each patient that they be accompanied by their family physician, or that they have his written certificate to the effect that it will be safe to administer gas, in which case the only thing you would have to prove in event of death would be that you had administered it with all the usual precautions.

There is one point in relation to anæsthetics which it is always well to bear in mind, and one that can be amply demonstrated, and that is, it is strangely associated with death in the minor operations of surgery.

If we could surround the taking of gas with more restrictions it would aid materially in the preservation of the natural teeth. I believe the experience of all present will justify the conclusion that since gas has come into use and the extraction of teeth has become a painless operation, it has become common for persons to have their teeth extracted by the wholesale, strange and incredible as it seems and have artificial substitutes, rather than undergo the pain and annoyance attending the filling and preservation of them.

I did intend to say something on the question of always having the third person present at each exhibition of gas, for it is well known that strange fancies fill the minds of many persons when under the influence of anæsthetics, but this portion of the subject would prolong this paper to a greater length than would be just to your patience.

The subject is one which could be written on to an indefinite extent, but my object will have been accomplished if I can direct attention to and promote discussion of this, to my mind, the most important question that comes within the range of a dental surgeon, dealing as it does with human life.

THEORY vs. FACTS.

DR. A. M. ROSS.

It used to be taught that theory and practice were in opposition; that this is still quite true is without doubt, but it is also true that during the past one hundred years speculation has been making a

great advance into the domain of practice. Theories developed during this period of time have been based largely upon practical-knowledge, and a property of the human mind recognized as the selecting and comparing faculty, that has been wonderfully developed. The mind is constantly receiving suggestions from the internal and the external world, and according to the capacity of the individual these suggestions are arranged, and by a process of reasoning by induction or deduction certain conclusions are arrived at and disposed of, and practical theories are evolved. By a comparative inactivity of this faculty, permitting the ideas to flow spontaneously, a state of abstraction or reverie is produced, and baseless theories evolved.

Dr. Beard, in his article "Neurasthenia," Dr. Carpenter, in his "Human Physiology," Dr. Holland's "Chapters on Mental Physiology," and other authorities, very plainly show that a concentrated attention on any object of thought will intensify the impression of it, and this may proceed so far as to make ideas dominant, or the idea dominant over all else.

The individual who is constantly alert, who ever strives to cultivate this discriminative faculty, who is cautious and careful to give due weight to all sides of a question, will never be dominated by ideas, nor in the study of any problem will he be likely to run off with any of its factors as a solution of the whole.

Is there an application of this subject, of the qualities of this discriminative faculty, of this power of selecting and comparing the facts relating to dental caries, and by its application showing the domination of ideas? I think there is.

It is sensibly urged that in the study of dental caries all the facts so far developed that enter into the process should be carefully and impartially grouped; in this group order and sequence must be secured, and from it a theory of cause may be deduced. This is the logical manner in which to proceed. But is it in this way that the different theorists have advanced? If a man, by his special education can classify the proximate ingredients of the animal body, can reduce them to their ultimate elements, is able to investigate all the processes that go on in the elaboration and assimila-

tion of new materials, the wearing out and excretion of the old, we are to infer that if he takes up the investigation of this problem of tooth decay there will be no exclusion of any of its known factors.

A glance of the educated eye at the acid theory, the inflammation theory, and the germ theory, will reveal the fact that the advocate of one theory rejects certain factors, or treats with indifference what the advocate of another makes pre-eminent in his group. But for one thing we would be at loss to understand this, because we have to suppose what is probably quite untrue, that each preposessed investigator personally examines every factor of the problem, becoming familiar with everything co-related to it. But a survey of the field reveals the power and sway of ideas upon the subject of dental caries. As in religion, astronomy, medicine, etc., history repeats itself. The individual conceiving an idea from some external fact, elaborates a theory, consuming much after time in its defense and in the endeavor to reconcile other facts with the theory. After a time his position is found baseless and it has to be vacated. Does he acknowledge his error? Not at all. He is silent. He is, in his opinion, the friend of progress, and believes himself superior to those who prefer to study the question impartially, who view the facts in the case as pointing in no definite direction, but who believe that ultimately the cause of dental caries will be found.

It were better for us to strive after truth for the truth's sake, than to have any desire for notoriety mixed up in our endeavors. Ideas usually become associated in our minds by habit, and if we are awake, the suggestions of the external world extend a modifying influence, the will interfering and directing the train of thought. Now if the will is determined upon truth-seeking it will never be caught in the attempt to defend a weak theory. We have a noble example of this fact before us as a profession, and it would be well to follow the example and allow ourselves to become *Millerites*, to a limited degree.

Original Translations and Abstracts.

DENTISTS' INSTRUMENTS.

To protect steel instruments from rust a thin film of mercurial ointment should be spread upon them.—*Progrès Dentaire*.

TO REMOVE RUST.

To remove rust from steel instruments, rub them well with oil and let it lay for a few days. After that scour with quick-lime, when the rust will quickly disappear.—*Progrès Dentaire*.

A NEW METHOD FOR THE MANUFACTURE OF METAL PLATES.

A new method for the swaging of metal plates has been given to the profession by Dr. Kahnd, in Glauchau, which seems to be well calculated to bring metal plates into favor again, providing it will stand the crucial test of time. There are many cases where the use of metal plates is preferable, even absolutely necessary, and if dentists do not make them as often as they should, it is for the simple reason that their manufacture is attended with so many difficulties. The new method simplifies the process, as it does away with the tedious molding in sand, clay, etc., and also obviates the necessity of forming the plate by means of the hammer and anvil, substituting in its place simple compression.

For the mold Mr. Kahnd uses the Spence-metal, of which he speaks very favorably.

According to the analysis of Prof. Glasenapp the composition of 100 parts of the Spence-metal is as follows :

Sulphur,	-	-	-	-	-	64.4
Iron,	-	-	-	-	-	26.68
Copper,	-	-	-	-	-	0.59
Sand and Silicates,	-	-	-	-	-	5.79
Carbon,	-	-	-	-	-	1.92

Consequently it is a mixture of sulphate of iron and sulphur. The copper and carbon are probably accidental ingredients. The melting point of this metal is, like that of sulphur, about 111° C.

Now let us recall to our minds that sulphur melting into a thin, light yellow, liquid substance, at 111.5° C., becomes a semi-viscid, dark mass when subjected to a higher temperature, and is at 250° — 260° C. tenacious and black, but becomes a thin liquid again when the temperature is raised above the last mentioned figures. Remembering the composition of the Spence-metal we can reasonably infer points of similarity between it and the sulphur in regard to their melting points. The Spence-metal melts at about 111° C.; is thinnest at 138 – 141° C. and at this time best adapted to be run into molds. At a temperature of 180 – 190° C. the metal forms a viscid paste which can hardly be stirred.

It will be useful to those who want to try this composition to note that it should be melted slowly, and be constantly stirred with a thermometer. Thus the operator will be able to determine the temperature exactly, and can run it into his forms at 138 – 141° C.

Any impression of plaster paris will answer for molds, and we can, with a moderate amount of care, always be sure of exact forms, and an almost perfectly polished surface.

Mr. Kahnd forms the male cast by means of molten Stents-metal poured into the original plaster impression; then he paints this metal cast with a mixture of graphite and oil, and winds around it a brim of stiff cardboard, and molten Stents-metal is poured into this to form the female cast. These casts are backed by Stents-metal, or plaster of paris, and imbedded in a strong flask, the two halves of which may be gradually approximated. After everything is thus in readiness a rough pattern of the plate is made from lead foil, and from it the metal plate proper is cut. After a thorough annealing this is carefully put between the two molds and the flask slowly screwed together in a press specially constructed by Mr. Kahnd for this purpose. When the contours of the teeth are well marked upon the plate, it is taken out and the superfluous metal is cut away from the margin. After annealing again it is replaced, the flask screwed down tight, and the plate is ready. After a few

strokes of the file such a plate will be as exact an imitation of the plaster model as any caoutchouc plate.

All the materials necessary for this process can be obtained at Mr. Ernest Dcerr's, in Glauchau, Germany.—*Monatsschrift des Vereins Deutscher Zahnkuenstler*.

EXPERIMENTS WITH VARIOUS PLASTIC FILLING MATERIALS.

In order to determine the resistance to acids of various filling materials, the following experiments were made:

1st. Two grammes of Fletcher's white enamel were put into a flask containing a small quantity of sour milk, on September 6th. The reaction was acid and continued so until December 6th, when the filling material had lost 1.2 grammes in weight.

2nd. On September 6th, two grammes of Hill's Stopping were put into thirty grammes of common vinegar. The reaction continued to be acid for three months. But at the end of this time the filling material had disappeared, and the only evidence of its presence consisted in a thin film floating on the liquid. The stopping had been entirely dissolved in the dilute acetic acid. This would indicate that people who wear a rubber plate should always use an antacid tooth powder or mouth-wash after a meal containing vinegar in any shape.

3d. Two grammes of Superior Cement, made by Ash, were put into a small quantity of sour milk, on September 6th. Acid reaction all through to December 6th. Loss in weight 0.2 gramme.

4th. Poulson's new mineral cement put into sour milk for the same length of time as above, suffered a loss in weight of 0.3 grammes.—H. SPOERL in *Monatsschrift des Vereins Deutscher Zahnkuenstler*.

Reports of Society Meetings.**CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.**

A regular meeting of this Society was held at the office of Dr. Worthington Pinney, 72 Park Place, Newark, N. J., June 28, 1883. The President, Dr. F. A. Levy, occupied the chair. After the transaction of the usual routine business, Dr. Charles A. Meeker, of Newark, read the following paper:

PHOSPHORUS IN THE FORM OF ACID PHOSPHATES.

Phosphorus was discovered two hundred and fourteen years ago by the alchemist Brandt, of Hamburg, and since that time has retained a position in the materia medica of all civilized countries. The present process of manufacture consists in digesting clean broken bones in dilute muriatic acid, thus forming chloride of calcium and acid phosphate of lime, the residual bone cartilage remaining undissolved. The solution is then evaporated, when the acid phosphate crystalizes. It is then dried, mixed with half its weight of charcoal, and distilled from clay cylinders, one hundred pounds of clean bones yielding six pounds of phosphorus.

Coincident with its discovery it was found to act as a powerful general stimulant in small doses, in large doses as a violent irritant poison. Its physiological action is particularly upon the kidneys and genital organs, producing excitation and diuresis. It is also considered applicable in cases of prostration of the vital powers. The many published formulas in the medical journals in which this remedy forms an important adjunct, and the many advertisements of patent medicines where it is likewise used, testify to the esteem in which this remedy is held by the practitioners of all schools. About ten years since I commenced its use in the form of the lacto-phosphate of lime, and perfected the following formula:

R \bar{x} Phosphate of Lime (fresh)— $\bar{3}$ vi.

Aqua— $\bar{3}$ iv.

Muriatic Acid— $\bar{3}$ 1.

M.

This mixture will give a clear solution. Add aqua ammonia to

precipitate, and draw off the liquor by the aid of a siphon, and so continue by refilling with water and siphoning off until all trace of alkali is gone. Add to your magma pure concentrated lactic acid $1\frac{1}{2}$ f ℥, sugar $10\frac{1}{2}$ ℥, orange flower water, 1 f ℥, and water to complete $10\frac{1}{2}$ f ℥. This makes a very beautiful clear syrup, exceedingly pleasant to the taste, which I prescribed in a number of cases for defective nutrition, with good results, but was compelled to discontinue its use because of inability to keep it in warm weather, the making in small quantities causing a loss of time.

You all know that on several occasions at our meetings, I have called your attention to the employment of the Acid Phosphates, which I have now used nearly two years, and for the dental practitioner's purpose, I consider it the best way to administer phosphorus.

There is a significant proverb, "without phosphorus there is no thought." The fluid interior of the red corpuscles contains acid phosphate of potassa, the serum phosphate of soda, the juice of the muscles acid phosphate, the brain phosphoric acid. In pregnant women the phosphates disappear almost entirely from the urine and secretions, while in the pelvis and on the inner surface of the parietes of the skull is formed a deposition of bony matter supposed to contain a large amount of phosphates, which disappear in the later stages of pregnancy. It is probable that they are absorbed and utilized in the formation of the foetal skeleton. When there is previous mal-nutrition or an ænemic state, with an insufficiency of the phosphates stored for the growing foetus, there is a natural craving of the appetite for foods or minerals containing them, as indicated by the ravenous appetite for these foods, some finding it hard to withstand the temptation to eat the freshly made mortar used during the erection of a building, some having an inordinate craving for slate pencils, plaster of paris, marble, lime, etc., thus showing this appetite to be nature's demand for this element of life.

Blacke, of Paris, in order to obtain a correct knowledge of the action of the lime salts of nutrition, carefully submitted a pigeon to the test of taking food which was almost entirely deprived of the phosphates. It soon lost all its liveliness, its appetite, and a notable

portion of its weight, while it excreted more phosphates than it absorbed, the muscular and fibrous tissues diminishing as rapidly as the skeleton.

The addition of phosphates to its ordinary food soon brought it back to its normal condition.

I regret that I have not with me this evening my tabulated statement of cases in which I have used the acid phosphates, and seen the benefits derived from them. Want of time has prevented, but I will give them at some future meeting.

My success has been most marked in children whose teeth, when about half erupted (more especially the permanent incisors) show an arrest of growth, deep furrows extending in part or wholly across the labial surfaces, corrugated cutting edges, an entire or partial denudation, large white or brown spots upon the surface, enamel soft and crumbling, rapid wearing down of the incising edges by attrition and occlusion, through softness of texture. Most of these appearances practitioners will observe in children of from 6 to 12 years of age, and in females about the age of puberty. I have seen good results following the use of this remedy in pregnant women with aching teeth.

The discussion which followed the reading of the paper was quite general, but not of interest sufficient to repay publication.

Dr. R. M. Sanger, of East Orange, then read the following paper upon

CHEOPLASTRY.

GENTLEMEN:

I do not apologise for addressing you on a subject which has neither the claim of novelty or originality, nor am I at this moment enabled to place before you any illustration or specimens to render my claim on your attention greater, but so confident am I of the immense practical value of my subject-matter that I have perfect confidence in gaining eventually your interest and gratitude for directing your attention to Cheoplastry. It is, indeed, a very old friend, so old that it might be great-grandfather to some of us, though we all claim a kind of relationship or acquaintance with it. I believe there are many like myself, who, for years of their profes-

sional life possessed less even than a nodding intimacy. Now that I am thoroughly familiar, I can only regret that I have been so long in ignorance of such a valuable, simple, and unerring system of dental prosthesis, and sincerely desire to give all who are unfamiliar with its merits confidence in adopting it.

About twenty-five years ago Dr. Blandy applied the term Cheoplastry to a system of constructing artificial dentures by means analogous to the vulcanite process, only in place of rubber an alloy of tin was used for the base. A full description of this and similar processes will be found in "Harris' Principles and Practice." It is easy to understand that the advent of rubber completely eclipsed Dr. Blandy's invention—for I believe he was the inventor—and it is probable that, like an over-zealous witness, he spoilt his case by saying and claiming too much, and proposing a too universal use for it. The system may be familiar to you as "Weston's Metal," or "Reese's Cast Gold Alloy," the means of manipulation being similar in all, and the most important ingredient of their metals being pure tin, which is possibly injured by the addition of the noble metals. Dr. Reese, in conjunction with the venerable Atkinson, has without doubt devoted much time, ability and energy to the producing of the present artistic results; but whether his metal possesses the necessary strength for use in many partial cases, or is as universally applicable as is claimed, I am not prepared to say; but, in all lower cases, whether partial or entire, I unhesitatingly aver that the Cheoplastic system surpasses any other at present within our knowledge. I do not even except the "Allen," or "Continuous Gum" work, though without doubt we may succeed with that where we fail with rubber. The most limited in experience are familiar with the patients "who can't manage their lower set, anyhow." They are early in your office, and the last to leave at night, and I have heard of their coming in the middle of the night. "It won't stay in its place," and truly that is a distressing defect. Of course I here refer only to full sets. Weighted rubber rarely mitigates the evil. Spiral springs do not in all cases succeed, while they possess so many objectionable qualities that few dentists care to have recourse to them, and fewer patients to submit

to wearing them; but the cast metal base will at once meet the requirements of such conditions. The patient immediately seems to receive an inspiration of confidence; the denture remains firm and steady; no inflammation or excoriation is produced, or if it is, relief is readily afforded. Patients sometimes remark that they feel as if they had something in their mouth, but the same would apply to eating candy. Within the past month I have made successful dentures for two old ladies, whose cases were considered hopeless in several first-class offices, and would have been in my own, before adopting this method. The patients themselves are emotional in their expressions of surprise and gratitude at the successful result, affording them full capacity for mastication. I regret that it is not in my power to introduce these two cases to your personal notice, but unfortunately it is not. The *modus operandi* is at once simple and positive, much more so than rubber or celluloid. A minor advantage that I will here mention is the security you have of not checking gum blocks. Your case will come from the flask exactly as you have manipulated it in the wax, and by the display of only ordinary skill; little or no time will be required to give a high finish, which may be enhanced by electro gilding, though the metal itself will retain a color in the mouth equal to the best known amalgam.

To give an example of its general capabilities I have here the commonest of glass bottles, in which a casting has been made. It is unfractured, nor is any sign of leakage shown, though it has been saturated with dyed alcohol and strong acids. Comment thereon is unnecessary. The metal used is an alloy of tin, prepared by my assistant, Dr. Lawrence Vanderpant, who has spent many years in experimenting. I do not deem it necessary to trespass longer on your time and patience, except to state that I believe that the cheo-plastic system, whether by means of Weston's, Reese's or any suitable metal (which, by the way, will never be one of the nobler metals), will be to the practitioner of dental prosthesis as essential as plastic fillings or the rubber dam to the operator.

Dr. Sanger's paper was discussed by some of the older members, the debate being mainly confined to the best mode of taking impressions.

Dr. E. H. Bunting, Sr., on behalf of the Society, and as a tribute of respect, then presented to Dr. W. P. Richards, who had but lately taken upon himself the vows of matrimony, a handsome clock. The presentation remarks of Dr. Bunting and the reception speech of Dr. Richards were happily expressed and warmly received.

The Society then adjourned, to meet in September at the office of Dr. L. C. G. Watkins, in Montclair.

JAMES G. PALMER, Sec'y.

Editorial.

FACIAL NEURALGIA.

There are few disorders that so perplex and puzzle the dental practitioner as affections of the fifth pair of cranial nerves. He is so accustomed to visits from patients who complain of "neuralgia," but who, in by far the greater number of instances, are suffering from neglect of the teeth, that he is always very loth to admit that the pain is not due to some dental cause. Continued irritation of the terminal filaments of the maxillary branches of the trifacial nerves, due to decayed teeth, will often produce such a hyperæsthetic condition as very closely to simulate, if it does not really produce, an irritation of the nerve trunks. Again, irritation of a dental filament is frequently reflected along the course of the nerve until the pain is distinctly felt at a distance from the real location. This may even be upon the other jaw, and more rarely upon the opposite side of the face. Not infrequently dental irritation may manifest itself in the neighborhood of the supra or infra-orbital foramen, or in the temporal region. It is sometimes the cause of conjunctivitis and other affections of the eye. Any of the tissues, in fact, which are supplied by branches of the trifacial nerve, may be the apparent source of the pain which is wholly due to affections of the teeth.

It is not strange, then, that the dental or the general practitioner should at times find extreme difficulty in diagnosing such cases. It

is only after the most careful examination by an entirely competent dentist, that any one should consider a resort to constitutional treatment, or to general surgical interference at all necessary. Even the most thorough search may after all fail to reveal a dental lesion, for there are pathological changes in the tooth pulp which it is at times impossible to diagnose. There are also hypertrophies, or exostoses of the roots of teeth, which are only revealed by extraction. Impaction, too, of unerupted teeth, may be the hidden source of the most intense pain, only felt at some distance from the real location. It may readily be seen, therefore, that general surgery is without doubt sometimes appealed to, and a section made of one or more of the branches of the Trigemini, without any absolute necessity, and the wisdom of a consultation with the thoroughly qualified dentist before proceeding to extreme measures in any case is apparent. We might illustrate this by numerous instances in our own practice, but perhaps one will suffice.

Mrs. D., who was in the seventh month of pregnancy, had a long history of miscarriages. This was the eighth time, and she had never yet gone to full term, or brought into the world a living child. She was now in the hands of an eminent physician who was making the most strenuous efforts to carry her through. There had been from the fourth month a constant succession of various mishaps and illnesses, and the physician had waged a constant, unintermitting warfare, thus far successfully. She had passed the usual periods of her previous miscarriages, and her hopes as well as those of her medical attendant were high, that the time of danger was over, when she was seized with the most violent neuralgic pains, darting successively along all the three branches of the Trigemini. Every remedy known to medical science was employed without permanent benefit, and her physician had begun seriously to contemplate the dread alternative of premature delivery, although it implied the complete failure of all his long-directed efforts, and the blasting of the hopes so fondly entertained.

At this point we were summoned by the physician, as a kind of last resort, but with little expectation that the source of the trouble would be found in the mouth, as she had a beautiful set of teeth of

which she took extreme care, and had never required the services of the dentist. The patient was found bolstered up in bed, and undergoing the most excruciating pain. The first act was to procure a glass of hot water and request her to hold a liberal quantity in her mouth, and tell its effect. The pain was rather exacerbated by it, but as it produced a marked result we felt certain we were upon the right track. A mouthful of ice-water was then substituted, with the effect of producing a marked mitigation, and from these simple indications a diagnosis of pulp inflammation was at once made, which the result proved was correct. From a dental syringe alternate streams of hot and cold water were thrown upon single teeth successively, until the trouble was located in a superior first bicuspid. By means of a bit of floss silk passed between the teeth and sawed laterally back and forth, a large cavity was located high up beneath the gum, upon the distal surface. An enamel chisel was used to break through the tooth wall, and a sharp excavator then thrust through the thin septum of dentine directly into the pulp, with the result of an instant relief from all pain, by depleting the engorged tissues, which had previously been confined within the unyielding bony walls of the tooth. The proper dressings were applied, and the distressing "neuralgia" troubled her no more.

In this case the pain had never been located in the affected tooth, but had assumed all the appearances of genuine trifacial neuralgia, and only for the persistent skepticism which was the result of an extended experience, we should undoubtedly have pronounced it such.

But although we firmly believe that a large proportion of the so-called cases of neuralgia are directly tracable to dental disturbances, the surgeon will occasionally meet with instances which are due to other causes. We had such an one under our care recently. It was a pale, anæmic, chlorotic young girl, the most of whose lower teeth upon one side had been removed without relief from the pain which seemed to be located in them, and which immediately betook itself to another as soon as the apparently affected one was extracted. Electricity was used, and the following prescription ordered :

R	Ferri et Quin. cit	3 ii.
	Syrup Aurantii,	3 i.
	Aqua Dist.	3 i.
	Elixir Calisaya,	3 ii.
Sig.	<i>Coch. Parp. ter in die.</i>	

The pain vanished with the other general symptoms. Aside from dental or constitutional disturbances, there are lesions of the nerve itself, which sometimes demand surgical interference for relief from the terrible and persistent agony. We publish on another page two very interesting cases in the practice of Dr. S. Weir Mitchell, of Philadelphia, in one of which novel means were used to prevent the re-establishment of the diseased nerve. A letter from Dr. Mitchell informs us that the cement used to close the foramen was a preparation of gutta-percha. It is intended to leave it in position permanently, unless it shall cause inflammatory trouble. The final result of the operation will be looked for with interest. Up to the present time it seems successful.

A careful examination will usually enable the skillful dentist to distinguish between neural pains, the result of dental irritation, and actual nerve lesions. If it be the former, some tooth will ordinarily be found tender upon sharp percussion, or peculiarly sensitive to thermal changes. If the cause be an impacted or non-erupted tooth, there is usually local inflammation, perhaps muscular soreness, and difficulty in mastication, or swallowing. If there be pathological changes within the tooth pulp, there will sometimes be a sensation of fullness and pressure in the tooth, with a gnawing, uneasy feeling, quite distinct from the darting or shooting pains along the course of a really affected nerve.

Hypertrophy of cementum, or exostosis, is perhaps the most difficult of diagnosis of any of the dental diseases which simulate trifacial neuralgia. But even in this closely marked and obscure disease the careful observer will frequently detect something which may serve to give him an insight into the source of trouble. The body of the bone may present a protuberance, more or less marked, or the tooth will seem abnormally firm in its socket, and sore at times when used in mastication.

When none of these symptoms are discernible upon the most

careful inspection, we may begin to suspect undoubted neuralgia, and should proceed to a more critical examination of the character and location of the pain, and endeavor to trace the course of the darting paroxysms. If the pains be unilateral, are sudden in their attack, and of a shooting, boring, or burning character, if they are markedly intermittent, and if they leave the parts chiefly affected sore and tender to the touch, and especially if they appear to follow the course of a particular nerve, we may begin to be somewhat sure of their character. The constitutional condition of the patient is a great help too, in making out the diagnosis. If there is a state of debility, nerve lesions may be suspected. If the affection is of considerable standing, sore spots may be detected wherever the general course of the nerve is changed, and about the foramen of exit from the bone. The most common locations for these are about the supra and infra-orbital, and the mental foramen, and in the temporal regions. Finally, one grand distinguishing characteristic of all neuralgias is that great bodily or mental fatigue and all depressing and dispiriting influences predispose to an attack, and aggravate it when existing. There are other symptoms which may be relied upon at times, but these are the leading ones, and when these are found concurrent, an approximately clear diagnosis may be made.

The successful treatment of trifacial neuralgia is at times extremely difficult. First, the general health should be carefully looked to, and the tone of the system restored if it be lowered, by generous diet, tonics, and entire rest and relief from all disturbing influences. Quinine may be advantageously prescribed before the attacks, and in some instances small doses of strychnine are beneficial. Electricity is useful when the trouble is in the nerve centres, but it is apt to be injurious when the disease arises from excitement of the nerves themselves, or from irritation of their terminal filaments. Subcutaneous injections of morphia usually give temporary relief from the paroxysms. Dr. A.E. Cartledge, in *The Medical and Surgical Reporter*, recommends ether spray, and we have used it with marked beneficial effect, when the pain was accompanied or succeeded by sore spots. The eye or the ear may be protected by

pieces of oiled silk or rubber dam, when, by means of the foot bellows and the Richardson spray apparatus, the temperature of the tender points may be reduced until all sensation is entirely suspended. The operation should be kept up for eight or ten minutes, and this will usually be followed by marked diminution, or perhaps entire suspension of the paroxysms.

Deeper lesions of the nerves may require operations which only professional surgeons will be willing to undertake, but these are to be resorted to only when all other measures fail.

UNIVERSITY OF BUFFALO.

Dr. E. M. Moore, of Rochester, N. Y., who has for so many years been the Professor of Surgery in the Medical Department of the University of Buffalo, has resigned his position, and will be succeeded by Dr. Roswell Park, of Chicago, the editor of *The Weekly Medical Review*.

Dr. Moore possesses a national reputation as a surgeon, and has been remarkably successful in many capital operations. At its late meeting he received the honor of election to the Presidency of the American Surgical Association. As a lecturer he has few equals, and no superiors. Gifted with an unusual command of language, he is at once concise and entertaining. He is thoroughly systematic in his lectures, and his points are so clearly made and so aptly illustrated that they are certain to remain permanently fixed in the memories of even careless students. He has, withal, such a fund of apposite anecdotes, and is so thoroughly cheerful and buoyant in his manner, so earnest and enthusiastic in his teaching, that no matter how much the lectures of other professors were shirked, Prof. Moore was certain to meet the faces of the whole class. In common with thousands of others of the Alumni of the institution with which he has for so many years been connected, we sincerely regret that the advance of years and the necessities of a great practice have forced him to resign the position which he has so highly honored.

If anything could console the friends of the Buffalo University, it is the fact that Prof. Moore is to be succeeded by one who bears such a high reputation as does Prof. Park, and the Faculty are to be congratulated upon his accession. That his career may be as long and as prosperous as that of his predecessor, is the earnest wish of every graduate.

DENTAL CALENDAR.

We have undertaken the task of publishing a list of the Dental Societies of America, with the time of their regular meetings and the names of the Presidents and Secretaries. Such a register can but prove a great convenience to dentists, but to secure all its advantages it should be complete, and kept correct up to date. We shall do our best to make it such, but we must necessarily depend upon the kindness of friends for success. This month we publish a list of all the societies that we have been able to obtain, but the roll is far from being complete. We hope to add to it, until any one who desires knowledge of any dental society will need only to look in his copy of the *INDEPENDENT PRACTITIONER* for the information. The register will, however, be only misleading, unless we are kept fully posted concerning the changes made. The secretaries or members of every dental society in the United States are therefore earnestly requested to communicate with Dr. O. E. Hill, 160 Clinton Street, Brooklyn, N. Y., who will take charge of this department, or to send the desired information directly to the editor.

We shall be very glad to receive notices of coming meetings, and they will always have place in "Current News and Opinions."

AMERICAN DENTAL ASSOCIATION.

The coming meeting of this, the representative American Society, promises to be of more than usual interest. Niagara is the favored place of meeting, and the sessions held there are always successful. The first preliminary meeting, which resulted in the

American Dental Association, was held there in 1859, and since then of the twenty-one annual meetings, six have met there, so that about every third meeting is held at Niagara. There are many reasons for this choice, but there is one which is quite sufficient without considering others, and that is that the sessions held there are never failures.

The Association meets this year under the shadow of a heavy affliction. Its venerable and beloved President, Dr. W. H. Goddard, who had so long and so faithfully served as its treasurer, has died during his term of office. There is no one who was present at his assumption of the gavel at Cincinnati last year, and who marked his honest exultation in that culmination of a long and honorable professional life, who will not deeply regret the loss, not alone for society reasons, but on Dr. Goddard's own account, that he was not permitted the gratification of presiding at the meetings of a society whose interests had so long laid near his heart. Surely, it will be a source of much pleasure to every member to know that he had the satisfaction of standing the representative head of the profession in America before he died.

The sessions will necessarily be conducted by Dr. G. J. Friedrichs, of New Orleans, the First Vice President, and there is no reason to doubt that he will be fully equal to the occasion.

ANOTHER USE FOR CARBOLIC ACID.

Some people suffer the most intense pain and annoyance from in-growing toe nails. If the flesh has fully embedded the edges of the nail, and the tissue has become hypertrophied about it, cutting and paring seems but to aggravate the matter. When this is the case drop a very little pure carbolic acid along the borders of the inflamed tissue, and let it soak down beneath the nail. The pain will cease as if by magic, and the irritated flesh will soon make a healthy slough. If now the nail be scraped or filed very thin in the centre only, and from that back to its root, carefully leaving the edges alone, the growth will be directed toward the middle and a complete cure will result.

ERRATA.

When correspondents live at such a distance that it is impossible for us to send them proof sheets to correct, errors will creep in. Usually they are scarce worth notice, save for the annoyance they give to the author, but in Dr. W. D. Miller's article in the June number, are two which affect the scientific accuracy of the paper.

Page 309, line 4, for "c. m.," read "m. m."

Page 306, Fig. 2, for "zone of softened dentine," read "zone of softened non-infected dentine."

Also in Dr. Palmer's paper in the July number, page 357, fifth line from the bottom, for "Dr. R. M. Stenlee," read "Dr. R. M. Streeter."

New Appliances and Materials.

NEW LIQUID GAS APPARATUS AND DENTAL CABINET.

Dr. B. M. Wilkerson, late editor of this journal, the inventor of the Wilkerson chair and many other appliances largely used in dentistry, will exhibit at the coming meeting of the American Dental Association at Niagara Falls, a new liquid gas apparatus, and an operating cabinet, both of which materially differ from anything now in use, and which we think will be received with favor by the profession. As they are so soon to be submitted to the critical inspection of the best judges, we shall not here attempt any explanation or description of them.

PNEUMATIC PLUGGER.

DR. C. F. RICH, of Saratoga Springs, has devised a pneumatic plugger that is capable of excellent work. It consists of a very simple air-pump, which may be attached to a water or other motor, and placed beneath the floor, or in an adjoining room. A rubber pipe connects the pump with a hand-piece, in appearance not unlike an automatic plugger, in which is a diaphragm, and to this is

attached the piston-like hammer. The rubber connecting pipe is led underneath or behind the chair, and is fitted with a cut-off, which, by simple pressure of the foot, controls the air supply and suspends the action of the plugger while picking up and putting in place the gold. It is intended that the connecting pipe shall be attached to the operating table, and at this point is a cock which may be turned so as entirely to stop the action when the foot is removed from the pedal cut-off. The plugger is adapted to either the Snow & Lewis, or the Salmon points.

We have been using it attached to a dental engine, which does not operate it to the best advantage, but even under these unfavorable circumstances are pleased with the work which it has done. The blow is direct, its force may be varied by the simple revolution of a milled band upon the part held between the fingers, while the impact is a very close imitation of that of the hand mallet. The rapidity of the blows depends upon the revolutions of the motor, but it is sufficient for the rapid condensation of gold. The use of this instrument, like that of the electric plugger, relieves the operator from very much of the nervous constraint attendant upon mere hand work, and results in the saving of valuable time.

Dr. Rich has also devised a very simple and convenient rack for the holding of the points to be used in the plugger.

NEW LABORATORY FURNACE.

One of the most convenient appliances which we have ever used is a small laboratory gas-furnace, made by Dr. C. B. Parker, of Brooklyn. A cylinder of heavy sheet iron, about six inches high and seven in diameter, a little larger at the top than at the bottom, is so lined with fire-clay, or with asbestos and plaster of paris, as to present a flue, constricted just above the middle, and with a bell shaped top. Across the summit of the narrowest part, with their ends embedded in the lining, are arranged parallel iron bars, upon which may be placed a properly invested gold plate which is to be heated up, or which will hold a crucible containing metal for melting. Above these, in the wider portion, are placed movable bars

intended to support casts while drying, or to hold ladles for melting zinc or tin for swages, or upon which may be placed a basin for heating water. The whole is supported by a tripod, and is intended to be placed over a Fletcher-blast gas-burner (No. 7, Buffalo Dental Manufacturing Co.'s catalogue of Fletcher's Laboratory apparatus).

The laboratory uses to which this simple furnace is adapted are almost endless. The heat is readily controlled by limiting the flow of gas, while by the use of the foot bellows even refractory metals readily yield. In the soldering of gold plates it is especially convenient, as the whole plate may be kept at a red heat, the soldering being done without removing the piece from the furnace, and thus all danger of warping the plate or of cracking the teeth, is obviated, to say nothing of the time saved.

The manufacture of it is in no way restricted, Dr. Parker desiring that any benefits to be derived from its use shall be free to all.

Bibliographical.

OUR BOOK TABLE.

Journals there are in abundance devoted to some particular field of scientific enquiry, but until the issue of "SCIENCE," America could not boast of an illustrated weekly publication wholly set apart to the advancement of general scientific research. During the six months of its publication it has secured a standing and won a reputation of which older journals might well be proud, and it now occupies an established position as an authority upon all purely scientific questions. Our own Popular Science department has so often been under obligation to it for some of its most valuable items, that we should scarce know what to do were we deprived of its regular visits. It is published at Cambridge, Mass., at \$5.00 per annum.

THE NEW YORK MEDICAL JOURNAL, published by the well known firm of D. Appleton & Co., occupies a position among

American medical journals, not unlike that of *The Lancet* in England. It publishes a constant succession of original articles of the most sterling character, its reports of lectures and clinics are always full and instructive, and its editorials are able and interesting. So comprehensive is it that its table of contents covers nearly the whole of one of its broad pages. It may well be believed then, that it contains matter adapted, not alone to the general practitioner, but to every one who is interested in sanitary science. Published weekly at \$5.00 per annum.

THE WEEKLY MEDICAL REVIEW, published simultaneously in Chicago and St. Louis, has a corps of editors and contributors that would secure the success of a journal whose home was in less important medical centres than the two cities named. Each section of this great country has diseases peculiar to itself, and the practitioner who would know what progress is made in their treatment must read his home literature, while he who would keep abreast the advance of thought in the whole country needs journals from all sections. No one can fail to know the progress of medical science in the great west, at least, who is a reader of the *Review*. The subscription price is but \$3.00 a year.

An Index to the Practice of Medicine; by WESLEY M. CARPENTER, M. D., Assistant Pathologist to Bellevue Hospital, etc., etc., etc. New York: Wm. Wood & Co., 1883. Price \$2.50 and \$3.50.

We are indebted to the publishers, and to Mr. J. H. Mattison, No. 11 West Eagle Street, Buffalo, for a copy of this excellent work. It is one of those exceedingly convenient hand-books that every physician should keep upon his table, within easy reach of his hand. There is no particular claim for originality set up in the preparation of this volume, as the material has been mainly obtained from recent medical writers, but it is an excellent compendium of the views of the best authorities. As such it affords to the busy practitioner the latest ideas in symptomatology in a convenient and condensed form.

But it is to the student and to the young practitioner that it will prove of the greatest value. All the principal diseases are considered under the head of symptoms, etiology, physical signs, diagnosis, and treatment, and thus a glance suffices to give the enquirer a fair idea of what is most necessary to know concerning any case which may present itself. Every alternate page is blank, and so opportunity is given for the comparison and record of cases occurring in practice. The binding is flexible morocco with gilt edges, and there is a pocket for memorandum paper, and convenience for carrying a pencil. It has 284 pages, a very complete index, with tables of preparations for sub-cutaneous injections, atomization, weights, measures, etc. We especially commend it to all young men, and to those who are not in full medical practice.

A Treatise on Artificial Crowns ; Historical and Descriptive ; by JAMES E. DEXTER, M. D. S. A paper read before the First District Dental Society of the State of New York, January and February, 1883. *Reprint from the Dental Cosmos.*

Within a few years the practice of engrafting artificial crowns upon the roots of decayed teeth has grown to large proportions. Stumps, which formerly were universally condemned to the forceps, are now by means of the many methods offered, readily restored to usefulness and made capable of long years of service. It is at times a matter requiring considerable reflection to correctly decide upon which method will be most useful and permanent in a given case. Dr. Dexter has rendered a service to the profession by presenting a very complete list of them, with an analysis of the peculiar advantages presented by each. He has done even more than this: he has traced their history from the day of the insertion of the old wooden pivot tooth down to the present time, and given a complete resume of the gradual advances made in this department of dentistry.

The pamphlet of thirty-nine pages is illustrated with numerous cuts, which with the descriptions given, are quite sufficient to

enable any ingenious dentist to make and insert any of the many forms of artificial crowns.

Current News and Opinion.

THE DENTAL CALENDAR.

THE AMERICAN DENTAL ASSOCIATION meets annually the first Tuesday in August.

W. H. GODDARD, President.
Louisville, Ky.

GEO. H. CUSHING, Secretary,
34 Monroe Street, Chicago.

THE AMERICAN DENTAL CONVENTION meets annually at Saratoga, on the second Tuesday of August.

F. Y. CLARK, President.
A. C. RICH, Secretary,
Saratoga, N. Y.

THE NEW YORK ODONTOLOGICAL SOCIETY meets on the third Tuesday of each month, at residence of members.

S. G. PERRY, President.
E. T. PAYNE, Rec. Sec.
J. MORGAN HOWE, Cor. Sec.
34 W. 35th St., N. Y. City.

THE ODONTOLOGICAL SOCIETY OF PHILADELPHIA meets on the last Saturday of each month, at residence of members.

JAMES TRUMAN, President.
S. H. GUILFORD, Cor. Secretary.
AMBLER TEES, Rec. Secretary,
548 North Seventeenth Street.

THE ODONTOGRAPHIC SOCIETY OF PHILADELPHIA meets on the first Monday in each month, at residence of members.

L. ASHLEY FAUGHT, President.
G. F. WYMAN, Cor. Secretary.
ALONZO BOICE, Rec. Secretary,
Vine Street, corner Sixteenth.

THE PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS (Philadelphia) meets the first Tuesday in each month at Penna. Dental College.

J. H. GILHERNS, President.
T. F. CHUPEIN, Rec. Secretary,
1408 Pine Street.

THE AMERICAN ACADEMY OF DENTAL SCIENCE (Boston), meets on the first Wednesday of each month, at residence of members.

G. T. MOFFATT, President.
H. F. HAMILTON, Secretary.

THE SOCIETY FOR ADVANCEMENT OF ORAL SCIENCE (Boston), meets the last Thursday in December, March, June, and September, at residence of members.

D. M. PARKER, President.
W. H. ROLLINS, Secretary.

THE HARVARD ODONTOLOGICAL SOCIETY meets the last Thursday in each month, at residence of members.

J. G. W. WERNER, President.
A. J. COLGAN, Secretary.

THE HARVARD DENTAL ALUMNI ASSOCIATION meets annually at Young's Hotel, Boston, on the Tuesday evening preceding commencement.

F. E. BAMFIELD, President.
T. O. LOVELAND, Secretary.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK meets annually at Albany, on the second Wednesday in May.

L. S. STRAW, President.
J. EDWARD LINE, Secretary,
Rochester.

THE FIRST DISTRICT DENTAL SOCIETY meets at the S. S. White Dental Mfg. Co.'s rooms, corner Broadway and Thirty-second Street, on the first Tuesday evening of each month. Clinics at

the S. S. White Dental Mfg. Co.'s rooms, corner Broadway and Ninth Street, in the afternoon of every meeting day.

A. L. NORTHROP, President.

JAMES E. DEXTER, Secretary,

8 East Thirty-fourth Street, N. Y. City.

THE SECOND DISTRICT DENTAL SOCIETY meets on the first Tuesday in March, June, September, and December, at the residence of members.

E. H. DICKEY, President.

J. J. PITTS, Secretary,

191 Clinton Street, Brooklyn.

THE THIRD DISTRICT DENTAL SOCIETY meets annually on the third Tuesday in April, at place appointed at the previous meeting.

S. H. WELCH, President.

A. M. WRIGHT, Secretary,

38 Third Street, Troy, N. Y.

THE FOURTH DISTRICT DENTAL SOCIETY meets annually on the second Wednesday in August, at Saratoga Springs.

W. H. COLGROVE, President.

A. C. RICH, Secretary,

Saratoga Springs.

THE FIFTH DISTRICT DENTAL SOCIETY holds its annual meeting at Syracuse, the second Tuesday in April.

G. V. N. RELYEA, President.

G. S. CURTISS, Secretary.

Syracuse.

THE SIXTH DISTRICT DENTAL SOCIETY holds its annual meeting in Binghamton, the first Tuesday in May.

W. D. JEWELL, President.

E. D. DOWNS, Secretary.

Owego.

THE SEVENTH DISTRICT DENTAL SOCIETY holds its annual meeting in Rochester, the last Tuesday in April.

F. E. HOWARD, President.

J. S. WALTER, Secretary.

Rochester.

THE EIGHTH DISTRICT DENTAL SOCIETY holds its annual meeting in Buffalo, on the third Tuesday in April.

S. A. FREEMAN, President.

C. S. BUTLER, Secretary,
Buffalo.

The Seventh and Eighth District Societies hold a semi-annual union meeting on the last Tuesday of October. On the even year in Rochester, odd year in Buffalo.

THE PENNSYLVANIA STATE DENTAL SOCIETY meets annually on the last Tuesday in July, at such place as may be designated at the previous annual meeting.

J. C. GREEN, President.

E. P. KREMER, Rec. Sec.

W. H. FUNDENBERG, Cor. Sec.
330 Penn. Avenue, Pittsburgh.

THE NEW JERSEY STATE DENTAL SOCIETY meets annually, on the third Wednesday in July. Meeting of 1884 will be held at Asbury Park.

E. H. BUNTING, President.

CHAS. E. MEEKER, Secretary,
27 Fulton Street, Newark, N. J.

THE MASSACHUSETTS DENTAL SOCIETY holds its annual meeting at Boston, on the second Thursday in December, and its semi-annual meeting at such place as may be designated at the annual meeting.

F. SEARL, President.

W. E. PAGE, Secretary,
110 Tremont Street, Boston.

THE CENTRAL DENTAL SOCIETY OF NORTHERN NEW JERSEY meets the last Thursday in each month, at residence of members.

F. W. LEVY, President,

J. G. PALMER, Secretary,
New Brunswick.

THE BROOKLYN DENTAL SOCIETY meets on the second Monday of each month, at the residence of members.

A. H. BROCKWAY, President.

C. P. CRANDELL, Secretary,
508 Clinton Avenue.

THE PITTSBURGH, PA., DENTAL ASSOCIATION meets on the first Tuesday in each month, at residence of members.

F. A. REINHART, President.

W. H. FUNDENBERG, Secretary,
330 Pennsylvania Avenue, Pittsburgh, Pa.

THE ROCHESTER DENTAL CLUB meets on the first Wednesday evening in each month, except July, August and September.

F. D. BROWNE, President.

R. SALTER, Secretary,
Rochester.

AMERICAN DENTAL ASSOCIATION.

The twenty-third annual meeting of the American Dental Association will take place at Niagara Falls, commencing Tuesday, August 7, 1883, at 10 A. M.

GEO. H. CUSHING,
Recording Secretary.

The Committee on Credentials and the Treasurer will be at the place of meeting at 8 A. M., Tuesday, at which time it is hoped the members and delegates will present their credentials and pay their dues, as far as possible, before the hour for the regular meeting.

The afternoon of Tuesday will be set apart for the meeting of the different Sections, to enable them to complete their reports to be presented to the general association.

J. N. CROUSE,
Chairman Executive Committee.

AMERICAN DENTAL CONVENTION.

The American Dental Convention will hold its next annual meeting at Saratoga Springs, on the second Tuesday in August, 1883. A large attendance is expected, and quite a number of interesting papers are promised.

A. C. RICH, Secretary,
Saratoga Springs, N. Y.

NOTICE TO STATE BOARDS OF DENTAL EXAMINERS.

There will be held at the Cataract House, Niagara Falls, on Monday, August 6, 1883, at 2 o'clock P. M., a meeting of all the State Boards of Dental Examiners, for the purpose of perfecting the organization of a National Association of Examining Boards. It is hoped that every Board will be fully represented.

GEO. H. CUSHING,
Secretary of Conference held at Lexington, Ky.

THE sixth annual meeting of the American Society of Microscopists will be held in the city of Chicago, beginning Tuesday, August 7, 1883, and continuing four days. Ample preparations are being made by the Committee of the State Microscopical Society of Illinois, and the Chicago Academy of Sciences, and the attendance of members, and those desiring to become members, is expected to be larger than ever before. First-class hotel accommodations at reduced special rates have been secured, and choice arrangements made for the comfort and convenience of the meeting.

ALBERT MCCALLA, A. M., President,
Fairfield, Iowa.

D. S. KELLCOTT, PH. D., Secretary,
Buffalo, N. Y.

BLESSED AMERICA.

The proportion of doctors to population is given as follows by the *Siglo-medico* :

France,	-	-	-	-	2.91	per 10,000.
Germany,	-	-	-	-	3.21	"
Austria,	-	-	-	-	3.41	"
England,	-	-	-	-	6	"
Hungary,	-	-	-	-	6.10	"
Italy,	-	-	-	-	6.10	"
Switzerland,	-	-	-	-	7.06	"
United States,	-	-	-	-	16.24	"

HONOR TO A DENTIST.

Edwin Saunders, of London, England, for thirty-seven years dentist to the Queen, has been knighted, and will henceforth be known as Sir Edwin Saunders. As the President of the Dental Section of the International Congress of 1881, Mr. Saunders was called upon to extend the hospitalities of the profession in England to visiting guests, and he accomplished the task in a peculiarly graceful and happy manner.

For many years he has been intimately connected with the cause of dental education, and has been its generous patron. He was a distinguished and skillful practitioner, and these were reasons quite sufficient for the unusual honor so worthily bestowed, aside from the fact of his being dentist to the Queen, which in England is a qualification of itself.

Selections.

FACIAL NEURALGIA.

Facial neuralgia, originating in the left supra-orbital nerve, and finally affecting other branches, relieved by section of the infra-orbital nerve.

Mrs. M., aged 68, had for some years suffered with pain, which arose first in the left supra-orbital nerve, and now for some month affected with equal and extreme severity the infra-orbital nerve, and at times the infra-maxillary.

As every imaginable drug had been used, and galvanics failed to relieve, I decided to divide both the supra and infra-orbital nerves at one sitting.

The case is brought forward to illustrate a point of practical value, and of extreme importance. If I had had to choose which single nerve I should sever, I should certainly have selected the supra-orbital, in which the pain began. It chanced that I was indisposed at the time set for the operation, and therefore sent word to my colleagues, Dr. Hunt, who operated, and Dr. Morton, who assis-

ted him, to go on without me. In this consultation they concluded as a measure of prudence to divide but one nerve, and not being aware of the reasons which would have then led me to choose the supra-orbital, they divided the infra-orbital nerve.

The results were, however, to annihilate pain in all branches of the fifth nerve, and to leave on my mind a most valuable lesson, since nine months later the same satisfactory condition of things still exists.

The mode of reaching this nerve is not a matter of indifference.

In this case the antrum was broken into, and, if I correctly remember, my friend, Prof. Brinton, who has operated for me several times on the infra-orbital, prefers this operation. On the whole, however, it seems to me desirable not to break into the antrum. Indeed, I should like in a future case merely to cut the nerve in front, and again far back in the orbit, and then to leave a small plug of bone or ivory in the little canal, or to close the canal with dental cement. I do not observe that in this case the scar is tender, nor in fact is it apt to be—whilst it is frequently the case when incisions are made on the forearm and a large nerve is cut, that the cicatrix remains tender.

Neuralgia of left inferior maxillary nerve ; extension of pain to other branches ; Section of nerve ; Return of pain ; Second section and obliteration of canal with dental cement.

January 28, 1883. Miss —, of New Jersey, aged 43, underwent in April, 1881, by my advice, a resection of the inferior dental nerve on the left side, the operation being performed by Dr. Morton. The case and the immediate results were reported in the *Medical News* for March 11, 1883.

After a long period of ease, some time in March or April, 1882, the pain returned in the jaw at the old seat, and in June, 1882, had become as bad as before. The pain had all the usual peculiarities of neuralgia, and was not limited to the lower nerve, but was felt in both the temporal and orbital branches. At my desire, her home adviser, Dr. Ed. North, of Hammonton, gave her very large doses of aconite, which certainly abolished the pain; but in December, 1882,

it returned anew, and in January, 1883, she was re-admitted in a pitiable state of suffering.

On close study it was found that sensation had been restored in the area figured in my last report of her case as having lost it. In some places the touch sense was still imperfect, but it was nowhere destroyed, and throughout a needle prick could be felt.

Clearly the nerve had been re-made, and I was again face to face with this difficult question. After exhausting all means at our disposal, it was agreed in consultation, to seek for the nerve in the canal at the point where formerly it had been severed, and to divide it anew.

At the same time I felt that the operation might fail, like the last one, to give permanent relief, but that at least I should be more secure if I could in some way provide against re-union of the nerve ends.

I had thought of plugging the canal with bone or ivory, or of thrusting periosteum into it, but finally decided to fill it with dental cement. On January 28th, Dr. Morton operated, the patient having been etherized.

On exposing the bone, a small trephine was applied about an inch and a quarter in advance of the angle of the jaw, but the canal thus uncovered was ill-defined, and amidst the crushing caused by the trephine the bleeding and the obscure cancellous structure, we could find or see no re-made nerve. When the tissues were pushed back a little the old trephine mark was disclosed. It had filled up with bone except for one opening about a line wide, from which projected a button-like prominence, which proved to be a stump of nerve tissue. Unhappily the knife had swept over it, and whether or not it furnished filaments running forward over the bone cannot now be known.

On trephining so as to include it, we failed again to trace filaments running along the irregular canal, which certainly existed. The operation enabled us to pull out the nerve trunk some distance, and after stretching to sever it. A more careful search was then made for the filaments presumed to have re-connected the central end with the sensitive skin spaces on the chin. Finding none, the

canal was cleaned out, and the two ends of the canal thoroughly filled with warm dental cement, which admits of being easily molded when hot, and then hardens.

What is to be the result of this very novel procedure we have yet to see. Sensation was again destroyed in the region fed by the inferior maxillary nerve, showing that the nerve had been re-made, and again severed during the operation. At this date—May 10, 1883—there has been a recent return of neuralgic pain, but so far no inflammatory disturbance from the presence of the cement, as to the use of which both Dr. Morton and I have had such anxiety, as naturally attends the use of perfectly new methods. The same mode of obliterating the canal has been more recently resorted to by Dr. Morton in another case of resection of the infra-maxillary nerve.

DROPSY OF THE ANTRUM—PUNCTURED AND DRAINED—CURE.

Richard W., aged 10, was first brought to me for advice in the beginning of October, 1881, in reference to a fullness of the left cheek and prominence of the molar process on that side. He was a delicate-looking lad, belonging to a somewhat strumous family, but had enjoyed fair health up to the present. During the previous winter he had been hit by a hard snow-ball on that cheek, of the effects of which he had complained for some time; and early in the spring he had received another severe blow on the bridge of his nose, which his mother at the time thought had dislocated the nasal bones. I saw him, however, on the next day, and could not then make out any displacement.

His mother referred the present trouble to these injuries. The fullness had been first noted some six weeks previously, and had been gradually increasing since. At the time of her visit it was very evident on inspection. On examination there was found to be marked bulging of all the anterior wall of the antrum. The child was in good health otherwise. There was no difficulty in breathing through the nose, nor any sign of tumor in the pharynx or nasal cavities.

I saw him at intervals during the next six weeks, during which the fullness slowly increased, but no softening of the bone was discovered.

I now asked Dr. Roddick to see the case with me. He agreed with me in regarding it as due to pressure from within the antrum. On careful examination this time, now eight weeks after date of his first consulting me, limited softening and slight fluctuation could be detected on the root of the second bicuspid tooth. His health otherwise remained good. The following week fluctuation was quite evident over the roots of the canine and the two bicuspids—and crackling of the thinned bone was felt distinctly. A puncture with a scalpel was made over the root of the first bicuspid, and about 3ij of glairy colorless fluid escaped, with relief to the local tension. This again shortly accumulated, and five days afterwards the whole facial surface of the bone was pliable, crackling under pressure, and the hard palate on that side for about half an inch back from the alveolar process was bulging.

The lad was taken to the office of Mr. Alf. Wright, dentist, who carefully removed the canine and two bicuspids on the affected side. Their fangs were almost absorbed. The alveolar process was soft and crumbling, so that care had to be taken to injure it as little as possible. With the removal of the teeth a large quantity of glairy fluid escaped from the antrum through the opening thus made into its floor. Mr. Wright afterwards made a plate supporting a small hard rubber tube about the diameter of a goose quill, which passed into the cavity through the opening made by the first bicuspid, and kept it drained. A lotion of carbolized water was also given to the mother with directions to have the cavity syringed out frequently. With the removal of the pressure the prominence at once disappeared, reducing completely the deformity of the face. The cavity filled up, and now after the lapse of eighteen months there is no appreciable difference between the two sides.

The diagnosis in this case was somewhat difficult at first, and a more formidable tumor of fibrous or myxomatous character at first feared. The nature of the case was, however, made evident by the first puncture. The injuries the child received probably had a

good deal to do with the formation of the cyst; but whether by closing up the aperture connecting the antrum with the nasal cavity, or whether by inducing some morbid change in the mucous glands, naturally existing in the lining membrane of the antrum, it is difficult to say.

After the operation, Dr. Roddick, who was present and whose advice was taken throughout the case, and myself, endeavored to make out the position of this aperture in the nostril, but both of us failed.

A very similar case is quoted by Mr. Pollock in Holmes' Surgery, where the cyst occupied a large portion of the left side of the upper jaw. Its anterior wall bulged out the side of the face. A free incision was made into the cyst from within the cheek. The anterior wall was found to be partly membranous, and partly consisted of thin flakes of bone. A portion was readily removed, so that a free opening was left for the escape of the contents, which were of glutinous consistence and brownish in color. At the bottom of the cyst there was found projecting into its cavity the extreme point of the fang of the canine tooth. On its removal the fang was found partially necrosed. The cyst filled and closed in a short time without any further treatment. The patient was about ten years of age, and when he quitted the hospital there was no trace of disease, nor the slightest disfigurement.

THE EFFECT OF TOBACCO ON CHILDREN.

Dr. G. Decaisne has submitted to the Society of Public Medicine the results of some interesting observations concerning the effects due to the use of tobacco among boys. Thirty-eight youths were placed in his charge, whose ages varied from nine to fifteen, and who were in the habit of smoking, though the abuse of tobacco varied in each case. The effects of course also varied, but were very emphatic with twenty-seven out of the thirty-seven boys. With twenty-two patients there was a distinct disturbance of the circulation, bruit at the carotids, palpitation of the heart, deficiencies of digestion, sluggishness of the intellect, and a craving, more or less

pronounced, for alcoholic stimulants. In thirteen instances there was an intermittent pulse. Analysis of the blood showed in eight cases a notable falling off in the normal number of red corpuscles. Twelve boys suffered frequently from bleeding of the nose. Ten complained of agitated sleep and constant nightmare. Four boys had ulcerated mouths, and one of the children became the victim of pulmonary phthisis, a fact which Dr. Decaisne attributed to the deterioration of the blood produced by prolonged and excessive use of tobacco. As these children were all more or less lymphatic, it was not possible to establish a comparison according to temperament; but of course the younger the child the more marked were the symptoms, and the better-fed children were those that suffered least. Eight of the children in question were aged from nine to twelve years. Eleven had smoked for six months, eight for one year, and sixteen for more than two years. Out of eleven boys who were induced to cease smoking, six were completely restored to normal health after six months, while the others continued to suffer slightly for a year. Treatment with iron and quinine gave no satisfactory result, and it seems tolerably evident that the most effective, if not the only cure, is at once to forswear the habit, which to children in any case is undoubtedly pernicious.—*Lancet*.

REMOVAL OF A MAXILLARY TUMOR BY MEANS OF THE DENTAL ENGINE.

Mr. F. A. Nixon successfully removed an osseous tumor of the upper jaw by means of this instrument last Saturday, in Mercer's Hospital. The patient was a young country girl, and the tumor, which caused considerable deformity, extended upward to the floor of the orbit, and backward to the pterygo-maxillary fosse. A great and important advantage in the operation, as performed by Mr. Nixon, was that the small circular steel saws used were employed from the mouth, no incision having been made in the cheek, and an unsightly cicatrix consequently avoided. The operation occupied one hour and ten minutes in performance. No difficulty was

met with in using the saws, which, being so small in diameter, one quarter and one half inch respectively, were readily worked in a limited space, and could be guided by touch alone. This, in a difficult accessible region such as the pterygo-maxillary fosse, is an advantage of no little importance. The patient is progressing favorably.—*British Med. Journal*.

NITROUS OXIDE IN LABOR.

Dr. Tittel gives a report (*Wiener Med. Blatter*) of over fifty trials which he has made of the inhalation of nitrous oxide gas in parturition. He employed it chiefly in primiparæ with very severe pains, and found a diminution of the suffering in every case. He found that it acted better when given in the first stage, as its effects lasted into the second, and quiet inhalation was more difficult when it was attempted to be given in the second stage. The pulse was generally retarded, and the fœtal pulsations on the contrary, generally accelerated. The pains were, in many instances, increased in strength and frequency, and Dr. Tittel found this action of the gas very serviceable in multiparæ with few and weak pains. Vomiting was arrested in four cases by the inhalation of gas, and the only evil results which were observed were two cases of convulsions, one hysterical, and the other true epileptic.—*Medical Record*.

A TOOTH AT BIRTH.

Dr. Fordyce Grinnell, of Pine Ridge Agency, Dakota, reports the following case in the *Med. News*, March 31, 1883:

I drew a tooth for an infant seventeen days old. The child was a female, one-quarter Sioux. When it came into the world it had this tooth, a lower central incisor, developed as now presented. The crown and body of the tooth seemed fully developed, and as large as the usual milk tooth. The attachment to the gum, instead of a root, appeared to be a mere fleshy connection, and hence not

very solidly implanted. Moreover, it gave the child great uneasiness in nursing. The tongue in moving over the sharp surface presented by the tooth in every attempt at drawing milk from the breast, became abraded, and finally ulcerated. As soon as the tooth was extracted the child took the breast with avidity. The pain caused by nursing had undoubtedly interfered with the child getting a sufficient amount of nourishment.—*Louisville Med. News.*

GOOD DIAGNOSIS.

It seems that New Orleans has been enlivened by the dean of a Medical College there, who diagnosed and treated an ulcer of the gums about a young lady's tooth as cancer, and having failed the case passed to a dentist, who extracted the tooth and let the "cancer" get well. A true victory for nature.—*St. Louis Med. Jour.*

TERMS OF PUPILAGE.

The number of years a medical student has to spend at a medical institution prior to being admitted to examination for a medical degree, in various countries, is as follows: Sweden, ten; Holland, Italy, and Switzerland, six; Norway, eight; Denmark, six and seven; Belgium, six; Russia, Portugal, Austria and Hungary, five; France, England, and Canada, four; United States, three or two; Spain, two.

THE EXTENSION OF VICE.

Professor J. Edwards Smith has devoted a year to the study and discovery of adulterations in homœopathic medicines! When adulteration strikes the attenuated fabric of the *sim. sim. cur.* materia medica, we may well believe that vice reaches every fibre of our social system.—*Medical Record.*

Popular Science Department.

THE MEDICAMENTS OF BRUTES.

In a communication to the Biological Society of London, recently sent by M. Delaunay, on the medical practice of animals, the doctor gave some interesting facts, from which he argued that the human reason ought to be trusted as much as animal instinct, in many instances where medical science seems to be at fault; and he insists that the desire of sick persons for certain foods and drinks may be a natural instinct rather than a morbid fancy.

But he does not state how the one may not be mistaken for the other. In his list of examples of medical instinct in the lower animals, M. Delaunay says that animals bathe for cleanliness and health, that they get rid of their parasites by using dust, mud, clay, etc. Those suffering from fever restrict their diet, keep quiet, seek darkness and airy places, drink water, and sometimes plunge into it.

When a dog has lost his appetite, he eats that species of grass known as dog's grass (*dogtooth*), which acts as an emetic and purgative. Cats also eat grass. Sheep and cows, when ill, seek out certain herbs. An animal suffering from chronic rheumatism always keeps, as far as possible, in the sun. If a chimpanzee be wounded, it stops the bleeding by placing its hand on the wound, or dressing it with leaves and grass. When an animal has a wounded leg or arm hanging on, it completes the amputation by means of its teeth. A dog, on being stung in the muzzle by a viper, was observed to plunge its head repeatedly for several days into running water. The animal eventually recovered.

A sporting dog was run over by a carriage; during three weeks in winter it remained lying in a brook, where its feed was taken it. The animal eventually recovered. A terrier hurt its right eye; it remained lying under a counter, avoiding light and heat, although it habitually kept close to the fire. It adopted a general treatment, rest and abstinence from food.

The local treatment consisted in licking the upper surface of the paw, which it applied to the wounded eye, again licking the paw when it became dry.

The doctor thinks that veterinary medicine, and perhaps human medicine, can gather from these facts useful indications, precisely because they are prompted by instinct.

THE GRADUAL COOLING OF THE EARTH.

In a "Treatise on Natural Philosophy," by Professors Sir W. Thomson and P. G. Tait, Sir W. Thomson, speaking of an opinion advanced by Sir Charles Lyell, respecting the possible maintenance of the earth's heat without change throughout countless ages, used words which, says *Knowledge*, may be applied without change of a word to the stupendous theory advanced by Sir C. Siemens not so very long since—such an idea of a practically endless cycle "violates the principles of natural philosophy in exactly the same manner, and to the same degree, as to believe that a clock constructed with a self-winding movement may fulfil the expectations of its ingenious inventor by going forever." The earth is necessarily cooling from century to century; her volcanic energies are certainly diminishing, as certainly, to use an illustration of Sir W. Thomson's, as the quantity of gunpowder in a "monitor" is diminishing when hour after hour she is seen to discharge shot and shell, whether at a nearly equable rate or not, without receiving fresh supplies of ammunition.

EFFECT OF LOW TEMPERATURES UPON MAGNETS.

A recent investigation, conducted in the physical laboratory of Harvard University, has led to the discovery of the remarkable fact that intense cold can deprive magnetized steel bars of nearly all the magnetism which may have been imparted to them. The intense cold was produced by solid carbonic acid. This fact has an important bearing upon observations of the magnetic condition of the earth taken in high latitudes; for what appear to be daily and yearly changes in the earth's magnetism may be due in large part to conditions of temperature which affect the magnets used in the

observations. It also must be concluded that the molecular condition of steel is changed by great cold.

TO DISGUISE THE TASTE OF MEDICINES.—Bitter and nauseous salines are best taken simply diluted with iced water. A mouthful or two of iced water, before or after the dose, to blunt the sense of taste, and the dose between them in a wineglassful of iced water, renders it easily taken by most persons.—*Squibb's Ephemeris*.

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T H E

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Original Communications.

THE APPLICATION OF NITROUS OXIDE AND AIR, OR NITROUS OXIDE AND OXYGEN, UNDER PRESSURE, TO PRODUCE ANÆSTHESIA IN PERSONS FOR DENTAL AND SURGICAL OPERATIONS.

BY DR. E. P. HOWLAND, WASHINGTON, D. C.

Read before the Biological Section of the American Association for the Advancement of Science, at Minneapolis, Minn., August 21st, 1883

From my own experiments and the practical operations made in Paris, I believe that the administration of nitrous oxide and oxygen in condensed air chambers will yet supersede the use of ether and chloroform in prolonged dental and surgical operations, as nitrous oxide has already superseded them in ordinary dental operations.

The reason why nitrous oxide cannot be used for prolonged operations, as ordinarily administered, is, that the blood does not obtain any oxygen from the nitrous oxide, the latter being exhaled from the lungs undecomposed, and if breathed without air or oxygen will produce asphyxia.

I have administered nitrous oxide for dental and surgical operations to over 30,000, and found that when pure nitrous oxide is administered without any admixture of air, the average time of producing anæsthesia is fifty seconds, and the average time from

the first commencement of breathing the gas until the return of consciousness is two minutes. I have administered pure nitrous oxide in over 300 surgical operations in the city of Washington, the longest time a patient was unconscious being thirty-five minutes during a capital operation. The operation was performed by Dr. Bliss, and Dr. Stuart.

The skill and experience required in administering pure nitrous oxide for these operations can be acquired by but a few persons, as when the patient has become anæsthetized air has to be breathed to prevent asphyxia, and before consciousness returns again, the interval required for the latter varying from one-fourth to one-half a minute. Pure nitrous oxide will, therefore, never be made practical for prolonged operations. In my experiments on animals, having them breathe pure nitrous oxide, death generally occurs in about $2\frac{1}{2}$ minutes. If air or oxygen is mixed with nitrous oxide in sufficient quantity to prevent asphyxia it will not produce anæsthesia. But it can be mixed with equal quantities of air and breathed from a gas-bag in a condensed air chamber at fifteen pounds pressure per square inch, or mixed with oxygen in the proportion of eighty-five parts of nitrous oxide to fifteen parts of oxygen in a chamber where the surrounding air is compressed to five pounds pressure per square inch, and the mixture can be breathed an indefinite length of time, without danger or injury, producing perfect anæsthesia and perfectly oxygenating the blood. The compressed air in the chamber is merely used to compress the mixture in the gas-bag into a smaller space, so that the patient can breathe sufficient nitrous oxide to produce anæsthesia, and sufficient air or oxygen to oxygenate the blood.

The application of nitrous oxide and air or oxygen as an anæsthetic agent for prolonged operations, has but a very recent history.

On the 2nd day of February, 1878, Paul Bert announced to the Biological Society of Paris his discovery, as the result of theoretical deductions, of a process by which the anæsthetic properties of nitrous oxide could be used without danger of asphyxia. No experience had yet been obtained. When Paul Bert passed from theory to practice and experimented upon animals, he saw all his experi-

ments crowned with the greatest success. The results that he had announced in advance were realized beyond his hopes. The animals were plunged into a profound insensibility which could be indefinitely prolonged, and during which none of their vital functions were disturbed. The method was excellent in every respect. Encouraged by this result, Paul Bert resolved to apply to man the same method, and to perform, by means of it, the longest and most painful operations. In a note, under date of Nov. 11, 1878, he appeals to surgeons; he says: "I am now authorized by my experience with animals to commend urgently to surgeons the use of nitrous oxide and oxygen, under pressure, with the view of producing insensibility of long duration.

"I can assure them that by measuring, as I have indicated, the barometric pressure and the centesimal composition of the mixture so as to have for the nitrous oxide the tension of the atmosphere, and for the oxygen at least the normal tension of the surrounding area, they will obtain an insensibility and a muscular relaxation as complete as they may desire, followed by an immediate return to sensibility and perfect comfort.

"There is even a singular ease in applying this agent, for should there be slight inequalities in its effect upon different individuals, as must necessarily be the case on account of special susceptibilities, the barometric pressure need only be slightly increased or diminished, as is very easily done by means of regulating cocks.

"I know there are some difficulties to be overcome in the construction of the chambers for the application of this new anæsthetic; but for me, as a physiologist, it ought to be enough to have pointed out the agent, so marvelous and so easily applicable, shown the immense advantage of its use, and convinced, among other things, of its harmlessness."

Two Parisian hospital surgeons—Dr. Leon Labbe and Dr. Pean—responded to this appeal. The first operation, performed Feb. 15, 1879, by Dr. L. Labbe, was all-sufficient to demonstrate the excellence of the method, and the precious advantages to be derived from it.

Subsequent operations, performed partly by Dr. Labbe and partly by Dr. Pean, have given more eclat to that demonstration. These

expectations of Paul Bert were then completely realized, nitrous oxide and oxygen had definitely entered the domain of grand surgery, and the superiority of this anæsthetic agent over ether and chloroform had been forever demonstrated. His success was complete, and in a new note, addressed to the Academy of Sciences of Paris, Paul Bert mentioned the happy results of the first operations performed by the able surgeons just named. The surgeons, who had, at first, doubtless been frightened by the necessity of staying in compressed air, or by the sight of the metallic chamber in which they should perform their operations, were then interested by this method, to which they had previously manifested a strange indifference.

Dr. Perier, surgeon of the hospital of St. Antoine, began on May 7, 1880, to operate with nitrous oxide and oxygen, and on May 20th, Dr. Ledentu, surgeon of the hospital of St. Louis, made his first operation with Paul Bert's anæsthetic process. All these operations succeeded perfectly, as well as many performed by other French surgeons. In Paris several hundred operations have now been performed, and all have been crowned with the most brilliant success. The method is in a good way, and will no doubt in a short time supplant ether and chloroform, at least in hospital and city practice, and I think that the greater facilities in administering this agent, regulating the pressure and purifying the air from infectious germs in the air chamber that I have devised, will greatly facilitate its introduction.

The general conclusions to which we are led by the foregoing exposition may be formulated as follows:

(1.) Nitrous oxide, administered under pressure, and mixed with oxygen, produces within a few seconds a profound insensibility.

(2.) Under these conditions, life may be indefinitely sustained without the least danger of asphyxia.

(3.) In augmenting or diminishing the pressure, the degree of anæsthesia may be regulated at will, and with mathematical precision. Therefore, there is no danger of any of the accidents incurred through the use of ether or chloroform.

(4.) When inhalation of nitrous oxide and oxygen is stopped, the

patient recovers consciousness in a few seconds, and feels no consequent discomfort.

(5.) Nitrous oxide is merely dissolved in the plasma of the blood, and escapes when inhalation ceases.

(6.) Its use causes no danger to nutrition, and no change in the chemical composition of the organs, or cessation of their functions.

(7.) The action of compressed air upon the operator and his assistants need not be feared.

Compressed air is very efficacious in the treatment of catarrh of the mucous membrane of the nose, the Eustachian tube and the respiratory organs generally.

(8.) By reason of these facts, nitrous oxide and oxygen is proven to be superior to ether or chloroform, whether we consider its profound anæsthetic effect or its freedom from injurious results.

(9.) If the pressure of the air chamber is rightly and properly regulated it is absolutely impossible for the patient to run any risk by anæsthesia alone.

(10.) In all that concerns the application of nitrous oxide and oxygen to surgery, the scientific phase may be said to be exhausted, and this anæsthetic agent should be henceforth used for operations of infinite duration, instead of ether and chloroform.

Dr. Howland at the close of his paper, illustrated his points by the aid of suitable apparatus in the following manner:

A small box was provided to serve as an air chamber in which glass windows and a door were set and properly sealed. In this box was placed a live chicken. Into this chamber, by means of stop-cocks and rubber tubes, the air being previously exhausted, pure nitrous oxide was first forced from a gas-bag, producing insensibility in the chicken in the space of forty seconds. This was immediately followed by the mixture of nitrous oxide and oxygen, introduced from an iron reservoir, by means of which anæsthesia was sustained for seven minutes, as an illustration of its power, at a pressure of four pounds to the square inch. The chicken was then removed from the chamber, feathers were plucked from it for five seconds subsequent to its removal without eliciting signs of pain, and within twelve seconds consciousness was fully restored.

It was again placed in the box and pure nitrous oxide was introduced, with the result of causing death in fifty seconds. On removal and decapitation of the bird, its blood was found to be in a non-arterialized condition.

ÆSTHETIC DENTISTRY.

BY DR. E. H. BUNTING, NEWARK, N. J.

A pleasing feature of the nineteenth century progress is the tendency of modern artists to treat all subjects from an æsthetic as well as a sanitary stand-point.

Health and beauty are synonymous, and science was never so potent a sovereign as in the present methods vouchsafed for their preservation. As an adjunct to physical well-being, the teeth are all-important. Health and life depend upon the aid they render in moving the intricate machinery of the human system. They are the pivots upon which many forces turn.

"No man is a man minus his molars," is scarcely an exaggerated statement of the state to which the "lord of creation" is reduced by the absence of teeth. Digestion is retarded and he becomes a prey to nightmares innumerable. Life loses its savor if deprived of those pleasures of the palate which caused the Sybarite to desire a lease of his life for a thousand years.

The slightest failure upon the part of these diminutive accessories to perform their functions will clog the ponderous wheels of toil, and strike discord from the most intricate mental or moral machinery; in short the scientist was not far wrong who likened any derangement of the delicate nerves which find lodgment in the teeth to a subtle demon who plays Delilah to the veriest Samson in our midst.

So much for results to which we are indebted for some of the grandest triumphs of modern science.

The annals carry us a long way backward to the master whose handiwork has swayed constructive artists to whom even Mozart's

majesty was a myth, from the laboratory to the sanctuary. Here we bow, abashed by an original triumph which modern handicraft may never attain.

Now, concerning this beatific construction:—Let us inquire every detail is masterful. There is no halting in the grand economy of forces forming the whole. The form is symmetrical as that of the Venus de Medici, the chevalure and complexion perfect as that for which the fair Castilian was famed—the eyes are of course divine, and the teeth “Eugenia.” Now we come to the point at issue.

The mother being the first minister, and the first artisan of humanity, her first care should be the transmission of pure blood and sound muscle to her progeny. She should think the thoughts that will make them strong, and eat the food which will render them vigorous and enduring. Every child has a divine right to be beautiful, and if it be not so there is an omission somewhere. If the supple limbs be unshapely, then must Art come to the rescue and perform what Nature under pressure has failed to achieve. If the spine fails to fulfil its functions, she resorts to the electric stimulus which can supply lack of strength and vigor. If the complexion be sallow and lacking in the tints essential to beauty, we must look to the diet, selecting as a matter of constructive economy certain flesh-forming substances which will best clear the muddle. If the eyes be weak, those ministrations which at once strengthen and invigorate the brain must be sought, all the time remembering that bone and sinew have each their mission in performing the work of the system, as well as contributing to the external perfection of things which betray the infinite origin.

There is not in the annals of all the creations a construction which can compare to the human frame. The first attempt at critical analysis of its composing elements will go very far toward convincing even a skeptic of the divinity of the human species. Every atom is perfect of itself; and yet the absence of the smallest one would mar the harmonious action of the whole.

There is, perhaps, no avocation on earth where so much is left to conscience as in the matter of treating the mouth whose teeth have

been left to take care of themselves until Nature has broken out into an unquenchable revolt. Pain—and such pain—is an argument which humanity is slow to resist. The strongest constitution is swayed as a reed in high winds, by the iron grip of an agony for which there is no resource save the formidable forceps, of which humanity has a wholesome dread. The mission of the dentist is to remove pain by first inflicting pain! Par consequence, we hold him in that sort of blood-curdling awe with which we regard the ghosts of duties unperformed.

These issues constitute a fertile field for the exercise of that foresight which would prove to modern science an invaluable aid.

Again let us retrace our steps. The old adage "Two steps backward to one forward" is more clearly demonstrated in the annals of dentistry than, perhaps, in any other science. Mothers should look specially to the formation of the teeth of their offspring. Certain foods tend to the production of strong teeth which will not crumble at the touch of sweets, or discolor under the influence of modern esculents. Teeth that betray the work of the cereals in their construction; teeth that will do to live by and to die by; teeth which are suggestive of the strength, vigor and character they are destined to express, are an adjunct as essential to the perfection and harmony of the human figure as the eyes, which are mirrors of the divine, or the flesh, typical of humanity.

These accessories of the system are of slow and painful growth. They are, in truth, a second birth born of the necessities of digestion, and they are, as a general thing, sufficient, not only as an element of beauty, but an indispensable appendice to health. If we could examine at will the death-record, we should with few exceptions find that the diseases which proved fatal had their origin in lack of mastication resulting from imperfect or insufficient teeth. If people only realized the importance which attaches itself perforce to this branch of constructive economy, the dentist's chair would cease to have the terrors which now menace the victims of imperfect teeth.

They should be good and beautiful, for nature is a royal benefactor, who never fails of herself. Her resources, if not weakened by

use or impaired by disease, are simply perfect. The necessities of approximating as nearly as may be the original standard, has imparted an æsthetic side to this sensitive subject.

The conscientious mother will be a scrupulous guardian of the texture, shape and growth of the teeth of her charge. She will esteem her dentist an incident or an accessory to household economy quite as important as the minister or family doctor, to whom she flies under pressure of those ills to which all flesh, especially infant flesh, is heir. Never was the old adage concerning that ever seasonable and potent "ounce of prevention" more forcibly exemplified than in the treatment of the teeth. There are, of course, instances in which all precautions fail. The enemy will come, despite the vigilance which does not slumber at its post.

The richest and most varied resources of nature must fail anon, and she avail herself of the immunities of her handmaiden, art.

Now we come to the developments of modern dentistry, which embody an art so perfect as to conceal even the trace of art. Let us reverently enter the domain in which the genius of the present practitioner reigns supreme.

The instant the patient is in the chair, with that sublime instinct to repair damage and to remove pain, comes the perception which is half an inspiration, and which enables him to decide concerning the tastes and habits of his subject, and to adopt the remedies at hand.

To supply, in any sense, the deficiency of nature, is a grand thing. The artist-dentist will, of course, avoid all appearance of the craft which savors of supply. If there be pain the first duty will be to remove the cause ; this done, of course, study the effect, keeping nature, the grand first cause, perpetually in view.

The artist dentist will study the requirements of the mouth with which he has to deal as carefully as does the physician the system in which his remedies are expected to restore health and perpetuate life. A knowledge of the tone and habits of the patient are issues of vital interest upon which, oft-times, a cure depends. Like the dentist, he too finds it essential to pull down before building. It is poor policy to rebuild a structure upon an unsound basis.

Decaying sleepers and crumbling masonry if not removed, must be so thoroughly repaired that not a vestige of the spoiler remains.

The necessity of making a clean mouth to begin with bears upon its face the fallacy of a certain tooth-crowning process which may prove an excellent adjunct in improving or altering the appearance of the mouth if applied to sound teeth, that is, if the accessory be fitted so accurately as to prevent the lodgment of food particles, which, the crowns being stationary, are not easy to remove.

This we esteem an innovation on established laws, a trifle incomplete, to say the least. Other departures are more decided and prolific of results pleasing and profitable.

It is, of course, no part of my object to discourse upon the science so familiar to my learned colleagues of the chair; yet one fact suggests itself as worthy of repetition:

The natives of northern Siberia have singularly healthy teeth. Old men of sixty or seventy have sets of teeth small and pearly white, polished and healthy. Decay and suffering are unknown. A physician of Yakiotake attributed this to their habits, and the kind of food eaten by the natives, and to a certain care taken by them from childhood up. First, the natives do not touch sugar in any form, for the simple reason that they cannot afford to buy it. Secondly, they are in the habit of drinking large quantities of fermented sour milk, summer and winter, which is antiscorbutic, and is very beneficial in preserving the teeth. And lastly, they have the habit of chewing a preparation of the resin of the fir tree, a piece of which, tasting like tar, they masticate after each meal, in order to clean the teeth and gums of particles of food that may remain after eating. The gum, or resin, is prepared and sold by all the apothecaries in Siberia, and is much used by Parisian ladies.

A marked triumph of modern dentistry has been to take from false teeth the ghastly aspect imparted by an unnatural whiteness; a wholesome tint is imparted and an assumption of naturalness observed which would readily baffle the perception of critics unfamiliar with tricks of the craft. Modern artists are careful to avoid any appearance of setness in the formation. Many times a facial defect may be remedied in the second set of teeth.

The old tragedy of Fantine selling her beautiful teeth, as told so touchingly by Victor Hugo in "*Les Miserables*," recurs less frequently, though now and then the demand for transplanted teeth is successfully dealt with. If the tiniest cavity can be found, the filling will increase the appearance of naturalness, which is the acme of art.

FILLING TEETH AND THE PHILOSOPHY THEREOF.

BY DR. J. HAYHURST, LAMBERTVILLE, N. J.

In considering the subject which we have chosen to-day, it will be necessary to allude to that which causes so much labor, and to counteract which calls forth the most skillful manipulations of the most scientific and adroit members of our profession. I mean

DENTAL CARIES.

It is not my purpose just now to enter into an elaborate and detailed investigation of the causes of this disease, or into a critical analysis of the agents which work so great a harm to the human family, but merely to state in a general way what it is, and so far to describe it as to enable us to know the nature of the enemy with which we have to contend.

Dental caries is a breaking down of the tooth-body, occasioned by the external application of some agent inimical to the health of the tooth, or it is an inherent vice growing out of the pathological condition of the patient, operating from within outward—the former from the outside inward—devitalizing and destroying the tooth structure.

As to whether or not this agent is acid, alkaline, mechanical or parasitical, it is not my intention to inquire.

If any or all these agents are at work, then it is plain that we can, by properly routing them out of their lodgment and preventing their re-entrance, stop their devastation. But if we fail to close the door after the expulsion of the bad tenant, then it is well described in holy writ: "After the unclean spirit was cast out he

says I will return to whence I came. And when he cometh he findeth it swept and garnished. Then he goeth and taketh with him seven other spirits more wicked than himself, and they enter in and dwell there, and the last state of that man is worse than the first."

So it is with the tooth. In our endeavor to repair and preserve, we take out all of the diseased matter, and leave the sound walls of the cavity to receive the filling, if properly placed, and thus prevent further destruction of healthy substance. Thus can we not see that if we do not shut the door close against the entrance of the evil, the work of destruction will go on with increased force, and thus the last stages of that tooth will be far worse than the first.

If our operation is imperfectly done, and we do not make a tight union between the substance used as a filling and the cavity, thus permitting the corroding agent to enter between the filling and the newly exposed bony structure, the plug will assist in holding the injurious matter up to its work.

It can make no difference in the result as to whether the material out of which we propose to make the filling is hard or soft, spongy or dense, plastic or solid, if we leave the margin between the filling and the sides of the cavity so that the corrosive fluid can find a lodgment there. The trouble lies not in the material employed, but in the manner of its introduction into its place. It is an almost universally admitted fact that the fillings that most nearly accomplish the design of the manipulator are those of gold foil, properly made and introduced, and here is a point to which I wish to draw your attention. Let us examine some of the materials used, and find out if possible what are the objections to them. Gold, fine gold, is incorruptible, and for aught I know sponge gold or plastic gold is as fine as any other. It claims to be pure, yet from most operators comes up the cry, "I can not make good work with it—let me take as much care as possible, make it as dense as I can, put as fine a polish as I please, it goes out from under my hand to all appearances a perfect specimen of workmanship, but in a short time the patient comes back, and there is a dark appearance visible

between the filling and the enamel. How comes it? What is the cause?"

The mechanical arrangement of the condensed fillings of plastic gold and amalgam are the same, the body of the filling becoming very dense. It is of a homogeneous structure, and the laws of expansion and contraction are the same in similarly constructed bodies.

What is the explanation of the defect in the plastic gold filling? The gold has retained its integrity; no change there. But there has been sufficient contraction to permit the fluids of the mouth to interpose between the gold and the bone, and hence the mischief.

If we could have the same chance for a nice observation of an amalgam filling, one as free from extraneous matter as the gold, we should find the same cause producing the same effect.

The failure to make a perfect filling is in the mechanical composition of the plug.

In the former portion of this essay I alluded to a gold filling made from gold foil. This kind of a filling is universally admitted to be the best that can be made.

What is its structure? And why should it claim the pre-eminence it has acquired? It is not, strictly speaking, a homogeneous mass, but is formed of layers or convolutions. When a mass thus formed expands or contracts, it does so in the direction of the lamina or shreds of which it is composed, and this expansion is not a rigid one, but one that will conform in a greater or less degree to the cavity which contains it.

Thus we have a filling that will adjust itself to its surroundings, while the solid mass expands against the walls that confine it, and pushes itself away from the tooth substance, while the laminated mass, not being so rigid, does not act with such force, either against the walls of the cavity or upon itself, as to make a well-defined space between the filling and the tooth-bone. If the theory I have endeavored to establish is correct, then we have done all we can when we have removed the obnoxious substance and replaced it with a pure and clean material, so that the enemy cannot enter to destroy and lay waste the fair heritage with which every healthy being is endowed.

I do not know whether any one has ever claimed that there was any curative property in a filling, but we are often asked if, when the tooth is properly filled, it will ever decay again. We do not promise to make the tooth better than nature had made it, but we propose to repair all damages made by disease, or at least to put it in the best condition possible to resist the progress of decay. But this does not improve the quality of the material of which the tooth is composed.

There is a class of materials of a plastic character that is extensively used amongst us, but as most of them are of a temporary nature I leave the subject with but this slight notice of them. Much more might be said on this interesting subject, but as it is impossible to exhaust it I leave it in the hope that this presentation may tend to bring out something from others.

Original Translations and Abstracts.

HISTOLOGICAL INVESTIGATIONS UPON THE ACTION OF ARSENI- OUS ACIDS ON THE NERVE FIBRES OF THE PULP AND THE DENTINAL TISSUES.

BY DR. C. F. W. BODECKER.

During the session of the American Dental Association at Niagara, Dr. Bodecker laid before its members some of the results which he has obtained in his researches upon the action of arsenious acid on the tissues of the teeth. He said that the work had not been completed, but as the interest in this question was so great, he did not hesitate to communicate the results in part. This interest is evident from the protracted dispute concerning the action of the poison on the pulp alone, and the question whether it reaches further. Dr. Clows, he said, had been impressed by an unexplained phenomena; namely, that an application in the dentine showed action also in the pulp, an action similar to that induced by an application to the pulp directly, differing only in time. In 1869, Dr. Witzel, of Germany,

studying the diseases of the tooth, observed a partial action on the pulp, the remainder being unaffected. In Germany this is largely accepted, whereas in this country it has been denied by many.

These and other instances from literature have influenced Dr. Bodecker in taking up the present line of investigation. But more especially was it his experience in sixteen cases in his own practice, which led him to inquire into the details of the process. Eleven of these cases he was enabled to follow up, and in all, the pulp stumps had died.

Dr. B. acknowledges that the human subject is the only final field of research, but from obvious reasons he has experimented also upon the teeth of animals. The drill holes were sunk into the dentine so that the poison was not in immediate proximity to the pulp. The teeth were examined after different periods of time, and the tissues were so treated by a preparation of osmic acid that changes from the action of reagents could be excluded.

The results were truly striking, and we shall mention them as briefly as possible, referring the reader for more details to a future time, when the investigations shall have been completed and published in full in this journal.

I. The pulp showed to the naked eye all symptoms of active inflammation.

II. Under the microscope the nerves appeared so changed that the myeline was broken up into small portions and granules.

III. When the action had been prolonged, there were found minute globules colored black by osmic acid, outside the nerve fibres, scattered in the surrounding tissue; very probably a symptom of complete destruction of the medullated nerve fibers.

IV. In ground specimens (decalcification was in no case resorted to), the dentine was affected, starting either from the point of application, or radiating from different points of the pulp chamber. These places could be distinctly recognized by the naked eye as being intensely colored by the osmic acid.

V. The canaliculi were unequally enlarged, as were also their transverse off-shoots and connections. They were filled with black osmic-acid-colored masses, which appeared as if they were the

broken up and enlarged contents of the canaliculi; (the Tomes fibers).

VI. The basis-substance is narrowed in those places where the canaliculi are enlarged. Certain peculiarities in coloring (picrocarmine) seem to indicate that the lime salts have been more or less extracted.

Dr. B. demonstrated these points at the blackboard, and showed the specimens under the microscope.

He called attention to the similarity of these changes to other diseases of the tooth, but distinctly stated that they must not therefore be thrown together, as the clinical aspect must also be brought into consideration.

He concluded by saying: "I am well aware that in very many cases the effect of the arsenic has apparently not been so bad as might be expected, but on the other hand you may all remember severe cases of local, or even constitutional disturbances, which could not be traced to any other cause than that of a dead tooth which had been treated with arsenious acid. Be all this as it may, the question is certainly in order whether, in view of the serious consequences, we are any longer justified in destroying pulps by the use of arsenious acid."

GOOD FOR MEXICO.

Dr. D. F. Patino, in an article published in *La Escuela de Medicina* of Mexico, tells us of a fact which is highly creditable to our neighbor republic. Dr. Patino asserts and proves that Mexico was the first country in the world which founded an Insane Asylum. In the XVI century, during the Spanish domination, a lay-friar of the Convent of St. Francisco de Mexico, a brother named Bernardino Alvarez, conceived the idea or plan of isolating the poor insane in a house which he fitted up with his own means and the help received from public charity. Thus, the first insane asylum was founded and located in a street of the City of Mexico, called then De la Celado, at present St. Bernard Street, almost in the same place

where to-day stands the church of that name. Till then, that is till the XVI century and during the first periods of Spanish Domination, the insane could be seen wandering along the streets, followed and persecuted by crowds of vagabonds and mischievous boys, who continually tormented them. The furiously-mad were immured in little cells having only a small window in the roof through which was thrown to them their food, which was rarely touched, as their lives were being extinguished by degrees amid the most inconceivable sufferings.

Brother Bernardino Alvarez conceived the idea of collecting those poor creatures, that science and charity might bring them again to life, to reason, to feeling and intelligence.—*El Progreso Dental*, Havana.

PRODUCT OF THE HEN.

The hen has in her ovaries in round numbers, more than 600 egg germs, which develope gradually and are successively laid. Of these 600 the hen will lay twenty in her first year, 135 in her second, and 114 in the third. In each one of the following four years the number of eggs laid will be diminished by twenty, and in her ninth year she will lay at most, ten eggs. In order to obtain from them sufficient product to cover the expense of alimentation, they should not be allowed to live over four years.—*Annales de la Sociedad Odontologica*, Havana.

DEFINITIONS.

Wrinkles—Life's scars.

Tears—Soul's blood.

Baldness—Work's crown and vice's reward.

Chocolate—A nutritious paste, in whose composition enters a little of everything, even Cocoa.—*El Siglo Medico*, Madrid.

Reports of Society Meetings.

NEW JERSEY STATE DENTAL SOCIETY.

The proceedings reached us in such a fragmentary form that we have been obliged to omit some parts because of a loss of connection, and to supply others.—EDITOR.

The thirteenth annual meeting of this Association was held at the Coleman House, Asbury Park, N. J., commencing July 18, 1883. The President was Dr. J. G. Palmer, of New Brunswick, and the Secretary, Dr. Chas. A. Meeker, of Newark.

The President delivered an excellent annual address, which, however, was chiefly local in its application, and after the usual routine business, Dr. C. S. Stockton said :

Mr. President and Gentlemen,—You are all more or less familiar with the journal called *THE INDEPENDENT PRACTITIONER*, which has been a joining together of dental and medical affairs, and has been a representative, more or less, of dental instrument makers and dental goods houses. I wish to call your attention to the fact that this *INDEPENDENT PRACTITIONER* will in the future be edited by Dr. W. C. Barrett, of Buffalo, and that it will be under the management of a number of gentlemen in New York, who are entirely independent of dental houses and dental goods dealers. We are under obligations, I know, to dental houses for the manner in which they have favored and assisted dental societies, and it may be that we would never have attained the position we have without their assistance, but the time has arrived when we want an Independent Dental Journal, and I can assure you from my close personal acquaintance with Dr. Barrett, and my knowledge of the gentlemen who are associated with him, or connected with this journal, that we will have in *THE INDEPENDENT PRACTITIONER* all that we desire in an independent journal. I therefore take pleasure in calling your attention to it, and I hope every member of this Society will subscribe for it, in order to encourage this new departure in independent journalism, as well as for their own benefit. I have a number of

copies here for free distribution. I have a *carte blanche* to receive subscriptions, and if any gentleman wishes to subscribe, after he has inspected a copy, I shall be very glad to receive his name. Furthermore, I will state that the proceedings of this Society will be published almost entire in this Journal, and it becomes us, if we want a copy of those proceedings, to subscribe for the journal that has the enterprise to print them.

The President—I desire to add a matter of my own knowledge to what Dr. Stockton has said, which is that hereafter the proceedings of the regular monthly meetings of the Central Dental Association of Northern New Jersey, will be published in THE INDEPENDENT PRACTITIONER, and that may possibly make the journal more desirable to the members of this Society, at least.

Dr. Henry S. Chase, of St. Louis, not being present to read his paper on Filling Teeth, it was read by Dr. C. W. Meloney.

This paper has not been received—EDITOR.

Dr. J. Hayhurst, of Lambertville, read a paper entitled Filling Teeth and the Philosophy Thereof. (See page 465.)

Dr. Bodecker, of New York—Mr. President and Gentlemen—In the paper of Dr. Chase we again have the electrical theory of dental caries advanced. This theory, I believe, has very little ground; in fact it is a settled question that the dentine as well as the enamel are classed among the worst conductors of electricity. If there are any manifestations of electrical action in the dentine, it is due to the moisture contained in the canaliculi. Dr. Willoughby Miller, of Berlin, who may be regarded an authority in dental caries, has made a series of very valuable experiments in the laboratory of Prof. E. du Bois Reymond, of Berlin, (see INDEPENDENT PRACTITIONER for February, 1883,) wherein he has arrived at the conclusion that a piece of dentine or enamel, when dry, subjected to the test of a very delicate galvanometer, scarcely showed any deviation of the needle; but if, on the other hand, the dentine was moistened with a physiological solution of chloride of sodium, a deviation was observable. Dr. Miller found that no galvanic action exists between the tooth itself and the filling material; but if different metallic

fillings were placed in the same mouth, a galvanic current from the more oxydizable (the electro positive) to the less oxydizable (the electro negative) metal, is the result, as long as the surfaces of these metals remain unoxydized. This oxydation in the positive metal, (amalgam or tin) fortunately does occur, and with it the electrical current gradually is destroyed. Dr. Miller furthermore found that on the surface of every filling, and especially of gold if unevenly condensed, an electric current can be detected as long as the surface remains clean. If this is the case, a gold filling introduced by the aid of the electro-magnetic mallet would be the best that can be made with regard to electrical action, for I believe with no other mallet can we introduce gold so uniformly as with this.

Dr. Chase furthermore says, if I understand him correctly, that gold is the worst material to fill teeth with, and a permanent filling can not be made with it. The Doctor may be right if he speaks of very badly organized teeth, and when we consider the process of secondary decay from a rational standpoint we will understand why most of the gold fillings in this class of teeth do not stand. Secondary decay, I believe, is nothing but a low grade of inflammation, mostly due to the irritation of the metallic filling. Gold, when in direct contact with the dentinal fibers, acts as a foreign body, and thus produces what is termed, "eburnitis;" that is, the Tomes fibres swell, the surrounding lime salts are dissolved, and the basis-substance breaks down, and in microscopical specimens we will find that the carmine (if stained) has been taken up by the Tomes fibres very much more than in other parts of the same specimen. But in fairly organized teeth gold can be made a perfect filling every time, if you protect the living matter of the dentine by something like oxy-chloride or oxy-phosphate of zinc. With this precaution gold is a better filling material than any other substance. If a cavity is lined with a solution of gutta-percha, then partially filled with oxy-chloride or oxy-phosphate of zinc, and a gold filling put over that, I do not believe there will, except in rare instances, be any secondary decay, always provided the gold filling has been put in water-tight.

As for the imperfection of gold fillings, I do not think there are

so many as is claimed. Most of them are inserted pretty well, and stand pretty well under ordinary conditions. When fillings give way the fault is more in the substance of the tooth, I think, if the edges of the filling were made perfect when inserted. We see in the mouths of some persons fillings that have been there for twenty, thirty, or forty years, many of which might be picked out with a nerve broach, and yet they remained all that time. In such cases it is decidedly not the workmanship that saved the teeth, but the density of the tooth-substance.

Dr. Atkinson.—Mr President and Brethren—I deem it an auspicious day when we can gather a hundred dentists together to talk upon subjects that have puzzled the wisest heads in physics and physiology, and have them speak with some little apprehension of what they are talking about; but when a man who has a large reputation, large experience and large imagination forgets the line between cause and effect, between antecedent and sequence so far as to charge to the material he works with the imperfections of his manipulative ability, it is time he was criticised so severely as to prevent the injury he would do to young men who may be within hearing of the paper to which we have listened. It is hardly possible to get as full a discussion of a question anywhere else as we have in our Dental Associations, for we are a young body, and are not overloaded with false precedent, with mere notions passing for scientific attainment.

I must commend Brother Hayhurst's paper; perhaps his Quaker blood explains that; but he should understand that the power is not the machine, but is that which operates the machine. If there is any analogy between a case of secondary decay in a tooth and the individuals out of whom the evil spirits were driven, it would not be attributable to the destruction of the evil spirits, but to the larger territory that the new comers would have to act upon, and he must understand that when we say spirit we do not mean an invisible figment, but a concentration of power in an awakened presence, holding within it a purpose. All this trouble about understanding what decay is has come from invariably attributing it to the seat of the activity rather than to the activity itself, and if it comes down to saying whether we really know what decay is, or that

we do not know, it depends upon our definition of the term decay. If we follow the term back to its origin we find that it comes from the Latin *de* down, and *cado*, I fall, and then we do know what it is: it is a falling apart of the elements that have been built up, whether it be in the form of enamel, dentine, muscle, nerve, or connective tissue fibre. I rejoice that the day has come when we can see with something of the inspiration of John Bell, a prescience which they tried to laugh him out of, but which has become definitely proved by many individuals who have had the patience to examine the process of the breaking down of the dentine. There is an abscess of the dentine, a retrogressive metamorphosis without any immediate connection with the cavity of the mouth through broken down tissues, the enamel being entire, and this proves that the process is inflammatory. And that was seen as long ago as John Bell's time. He did not have the great advantages that Brother Bodecker has had and improved, under such fine instruction as is obtainable in Carl Heitzmann's laboratory. But now it is revealed to us that the destruction of tissue has to follow the same law that governed its building up, by a reversal of the action.

The seat of the inflammatory action of which Dr. Bodecker has spoken, is in the dentine, and that inflammatory action is nothing else than a return of the tissues to their embryonic condition.

One thing that Dr. Bodecker said may make you stumble. He said the dentinal fibrillæ swell. They cannot swell unless they have space to swell in. His statement is true, but not sufficiently complete. The lime salts are first dissolved, leaving the animal basis-substance, or proteinaceous matter, and then, from the greater activity of the nutrient action in the dentinal fibres, they encroach upon the basis-substance of the dentine, which is now in a proteinaceous condition. What then is the result? That which was considered a mineral body before has now become changed into a higher grade of nutrient activity, and holds an affinity for analine, for salts of nitrate of silver, etc., which are capable of coloring the living tissue, and by which the microscopist detects the difference between the organic and the inorganic substance.

Miller has worked well. He has shown that it is the water that

is the conductor of this mode of motion that we call electricity, and not the dry dentine, or the dry enamel.

As long as the enamel is normal it has about two per cent of animal matter in it, and that contains hardly enough of the water element to induce much conduction ; but some very hyper-sensitive people, whose teeth probably have larger protoplasmic strings than those of better organization, will have the enamel of their teeth "set on edge" by taking acids into the mouth. How can we cure teeth that are so affected? By simply applying a little soap or soda. How is that done? You have not restored all the lime salts that the acid had removed. No, but you have restored that finer thing that is essential to normal sensibility, the harmony of the nutrient currents.

Dr. Osmon.—I feel somewhat embarrassed in taking the floor to say anything regarding these papers after such speakers as Dr. Atkinson and Dr. Bodecker have discussed them. But I think the paper of Dr. Chase is capable of doing a great deal of harm. I grant that he may be an earnest seeker after truth, and that he intends to do good ; but I think that if there is anything that has been detrimental to the young members of the profession it is this everlasting cry of plastic fillings. When men like Professor Flagg, Dr. Chase and Dr. Palmer, of Syracuse, advocate such a system as that, the young men of the profession are very apt to follow in their footsteps and serve these plastic idols instead of their golden Gods ; they are readily induced to take up the plastic fillings, because they are worked a little easier and more comfortably, and do not take quite so much time ; hence, I think such papers are likely to do a great deal of harm. When I first read Dr. Foster Flagg's book I was very much interested in it ; when I read Dr. Chase's articles I thought I had found something that would fill the bill ; that would enable me to serve people quicker and more cheaply, and do a greater amount of good than I could with gold, which requires hours and hours of time to make a perfect operation. I saw in that plastic material something that would enable me to do a great deal more work and so serve a greater number of people. But, gentlemen, as I stand here to-day, I think it is one of the greatest curses that has

ever invaded dentistry. I have gone back to the old way, and I tell you that gold foil manipulated with care, gold foil impacked with careful, conscientious manipulative ability, is the only filling which will stand by you through thick and thin. Is not that so, Dr. Atkinson?

Dr. Atkinson.—With one amendment. Gold is a conductor of thermal and electrical currents; but if you will put a little oxy-phosphate, or oxy-chloride of zinc, or gutta-percha over the dentine before you introduce your gold, then I say amen to every word.

Dr. Osmun.—I accept the amendment. And I protest in the name of every young dentist now in the profession or who shall come into it hereafter, against such teachings as that, for they are simply damnable.

Dr. Watkins.—Dr. Atkinson says you should partly fill the tooth with gutta-percha, and pack the gold over that. I did not know that he ever used gutta-percha under gold fillings. I have used it and have seen it used packed in solid with gold on top of it, and it split the tooth open. I have seen other cases where the side of a tooth so filled was broken off. I would like to hear something on that point.

Dr. G. Carleton Brown.—I remember hearing, a few years ago at the Pennsylvania College, Dr. Truman, I think it was, say that he did not believe a tooth was ever saved that was capped with gutta-percha. He illustrated his idea with a great many cases, and many persons agreed with him. Since then there has been another revolution, I believe, and some have gone back to gutta-percha.

Dr. Fowler.—My experience is that a gold filling, well put in, is the filling of all fillings. I have used plastic fillings with good success in their place, but of all fillings gold, when properly inserted, is the best.

Dr. Louis A. Reading.—With reference to non-conductors under metallic fillings, I have had no experience except with phosphates. I have used them in such cases with wonderful success by making good anchorages, not only up near the free margin of the dentine, but also making very small retainers in the phosphates.

Dr. J. A. Woodward.—Some time ago my attention was drawn to

some reported experiences in relation to the bursting or forcing away of portions of the crowns of teeth filled with gutta-percha, and covered with some unyielding material, and I was led to make the following experiment. Samples of three of the standard makes of gutta-percha were packed into six glass tubes. One filling of each make was then tested, and found to leak as usual. The other three tubes and fillings were placed in water at the ordinary temperature, for three days, and then tested, and were found not to leak. This result is due to the expansion of gutta-percha under moisture. When a large mass of gutta-percha is packed into a cavity and covered with any filing which will confine it, the expansion of the gutta-percha from heat and moisture undoubtedly exerts very considerable force in all directions. Should the tooth be a frail one, slight external force may cause a fracture; or should the pulp be closely encroached upon, pulp irritation may follow from the pressure.

Dr. M. L. Rhein.—Concerning the covering of the bottom of cavities with oxy-phosphate and then packing gold over it, I would say that I have followed that plan of procedure during the past three-and-a-half years, and I have not found a single case in which I had cause to regret it. My plan has been about the same as that described; that is, not to make retaining-points in the oxy-phosphate, but merely starting-points, and if any anchorage is needed other than the shape of the cavity affords, make it near the free margin of the dentine and enamel.

Besides that form of capping we find a large number of teeth where the cavities are such as not to permit us to place in them sufficient oxy-phosphate to afford the needed protection. This is especially the case with laterals, and they are the teeth which need a non-conducting barrier the most, they being the worst teeth for gold to be placed in immediate contact with the dentine. In those teeth I obtain the greatest benefit from the use of fine silk court-plaster. It can be cut in any desired shape, moistened and placed over the dentine, and the gold packed directly against this, forming a barrier which will prevent any thermal changes. I have found its employment successful in almost every case where I have used it; after the operation of restoring contour, etc., is completed, the

application of cold or heat should not produce the slightest sensation.

I would like to touch upon another point in the discussion, and that is the use of plastic fillings. Every one who has preceded me has decried the use of amalgams, intimating that nothing could save the teeth but gold. I strongly believe that a tooth can be better preserved through the aid of gold, cohesive gold, properly packed, but we should not ride the hobby of gold or no filling at all. Let a few grains of common sense be added to that golden rule. A great many patients come to us with the teeth in the posterior portion of the mouth in a broken down, bad contour, and the patient will not and cannot spend either the time or the money necessary to have them restored to their natural contour with gold. Must such teeth eventually be consigned to the mercies of the forceps? Is conservative dentistry merely for the wealthy? I have found that the use of a proper kind of alloy, impacted in a proper manner, will save those teeth, and will not discolor the tooth-structure. The best filling material I have found for that purpose is Bonwill's gold and platinum alloy. The quality of material is one consideration, but a more important point is that the work must be done in as thorough a manner as with gold foil. In this connection remember to take up all the free mercury. The neglect of this point causes most of the failures. It is very difficult to mix any alloy without leaving some free mercury in it. Use the mallet in inserting the amalgam, and by placing tin foil under the mallet you take up all the free mercury. The utmost care should be observed to take up every particle of the excess at the margin of the filling and the enamel, and by using that precaution, no discoloration of the tooth structure will ensue. A good amalgam, worked properly, will save teeth. I do not think it preserves them as well as gold, and I think I echo the sentiment of a great many dentists when I say it is *easier* to insert a *perfect gold filling* than to insert a good *amalgam* filling.

Dr. Louis A. Reading.—The gentleman who preceded me spoke favorably of court-plaster as a lining for cavities, and I will say for the benefit of the young men who heard him, that when I was in college I tried court-plaster on the recommendation of a gentleman

who forgot to say what kind of court-plaster we should use, and I made a bad mess of it. I will enlighten you that you may not do as I did. Having heard something said about its use, I tried it by putting a piece of black court-plaster under the proximal surface of a superior lateral incisor. About six months after that, when the patient came back, I noticed that the tooth was terribly discolored. I had bought some gold from a student, and I thought it probable that I had used an inferior article, so I removed the filling and called the attention of the demonstrator to it, who immediately said, "You have used dark court-plaster." I said, "Of course I have. The gentleman told us to use court-plaster, but he did not tell us what kind." Now, if any of you employ court-plaster in a tooth, please use white court-plaster, and not dark.

Dr. Hayhurst.—It is always pleasant to me to have the compliments of my friends, and I feel grateful for their commendations now; but the discussion has, it seems to me, got a little twisted out of its legitimate direction, and the point I wished to make in the essay is nearly lost sight of. I would be very sorry indeed, to ignore the philosophy and spiritualism and metaphysics that have made their appearance; I do not object to them, but I want to call your attention to the point I desired to make. My idea in writing that essay was, not to advocate gold over any other material, but simply to call your attention to the manner in which gold foil will work. I do not wish to say anything against amalgam, and did not desire to go into the philosophy of decay; I thought I ignored that, except so far as it was an evil influence that was to be kept out, and in doing so I indicated the proper method of keeping it out and the proper substance to use. Gold foil has been, and I don't know but it is yet, supposed to be the best material manufactured for filling that would accomplish the purpose for which the operator was working, which is to make a tight plug. In considering it I looked a little at the philosophy of the matter, at the method in which that gold filling is made, and the fact that a plug made of foil is either laminated or convoluted in structure, that it is not a homogeneous mass, that it is subject to expansion and contraction, and that it will expand and contract in the direction of the fibres of which it

is made. An amalgam filling, or a filling made of solid plastic gold becomes a homogeneous mass, without a laminate structure, and the expansion and contraction will generally be made in a rigid way that forces it against the sides of the tooth, which must yield, and then there is nothing to make that contract again, and so, when the filling shrinks it leaves a space. Now I ask why we reject plastic gold? Is it not on account of the fact that it becomes a homogeneous mass, and expands in the manner and with the result I have described? There is nothing in it to give; when expansion takes place, it pushes the sides of the tooth apart, and when it contracts a cavity is left around it, through which the fluids of the mouth penetrate. Amalgam acts in the same way. Possibly some of the plastic fillings may adhere to the tooth-walls; the phosphates may do so, and if they do they make a better filling in this respect than amalgam.

Dr. Osmun.—Will Dr. Hayhurst explain how a filling can expand in the direction of the laminae of the tooth, if it is made solid, more than in any other direction?

Dr. Hayhurst.—I alluded to the laminate structure of the filling, not of the tooth.

Dr. Rhein.—Dr. Hayhurst has taken entirely wrong ground on this question. There is, of course, some contraction and some expansion in all metals, but the amount of such contraction and expansion in a filling is infinitesimal, and it has no appreciable effect upon the tooth, nor upon the cavity of the tooth which it restores to its former condition. He asks why plastic gold has fallen into disuse. Because it cannot be impacted solidly, and because of the impossibility of getting a sufficient amount of gold into the cavity. It is for this reason that I believe in impacting the gold with the aid of the electro-magnetic mallet, because you can get more gold into the cavity, and it can be inserted in the cavity in a perfectly homogeneous and solid plug. There is no truth in the assertion that perfect gold fillings come back leaking. The filling that will bear the closest scrutiny under the magnifying glass, and defy the detection of anything imperfect at the margin of the gold and enamel, will always remain perfect unless natural causes produce fresh destruc-

tion of the tooth substance. If the exterior of the cavity is once hermetically sealed it will never leak.

Dr. Wallace.—Dr. Bodecker spoke of lining cavities with oxy-phosphate and oxy-chloride of zinc, and I would like to ask if he allows that lining to come up to the marginal surface. I believe there are no plastic fillings that are considered insoluble; I have never found any yet; and that being the case, the phosphates would be more readily acted upon by the fluids of the mouth than gold would be, and there would be chance for decay at the marginal surface.

Dr. Bodecker.—I have used oxy-chloride of zinc under gold and amalgam fillings for eight or ten years, in all cavities where I was able to, and I do not think I have seen half a dozen failures. It ought by no means to extend to the margin of the cavity, for it will surely be dissolved there. By filling up the greater bulk of a large cavity with oxy-chloride or oxy-phosphate to a certain extent you overcome the thermal changes, and also decrease the quantity of gold or amalgam, so that very little contraction or expansion is possible. If I have a very large contour in a molar or a bicuspid to restore, I would never think of building it up altogether with gold; if possible I would use oxy-phosphate of zinc for the bulk of the filling, except it were a central or lateral incisor in which there was not room for it. But in any cavity where a cement filling is admissible it should be used, and the edges of the cavity ought always to be very smooth and overlapped either by gold or amalgam, the cement never being allowed to reach quite up to the edge of the dentine. You must always have sufficient anchorage for your filling material in the dentine, except in the buccal and lingual walls of badly decayed bicuspids and molars. In this class of cavities I regard it sufficient to make one or two starting-points in the cervical portion, and another good anchorage in the grinding surface of the tooth, which will perfectly secure the filling even if there is no other anchorage. But always be careful to let the gold overlap the enamel. It is better to let the edges of a gold filling be seen than to leave the margin of the cavity imperfectly protected, or fractured during the introduction of the gold.

With reference to the use of gutta-percha under gold fillings, I would like to say that I never use gutta-percha in a thick layer, but always in a chloroform solution. In different cases I use a different strength. If I want to line a cavity with oxy-chloride or oxy-phosphate I use a pretty thick solution of gutta-percha previous to the introduction of the cement, because I regard it unsafe to place either an oxy-phosphate or oxy-chloride filling in the vicinity of the pulp, directly upon dentine. In superficial cavities, however, which are to be filled with gold or amalgam directly, the gutta-percha solution must be quite thin.

Dr. Wallace.—I have used plastic fillings to some extent, but I have had better success with gold than with amalgam. I have seen two fillings, one gold and one amalgam, both put in with the most careful manipulation, subjected to a microscopical test, and the gold filling proved to be tight while the amalgam filling was not. I have found on examining a number of fillings under the microscope, that the gold fillings were really more perfect than the amalgam.

Dr. Watkins.—The filling materials seem to be mixed this evening, especially gold and amalgam. A few years ago we were taught that we must not allow gold and amalgam to come in contact. Are we turning the dogs into the sheep pen? I have been practicing a method of partly filling cavities with amalgam and then finishing with gold, especially in the proximal surfaces of the bicuspid and molars. I place a piece of thin platinum plate around the tooth as near as possible to its shape and contour. Bind it there with silk floss, and then mix some amalgam as dry as possible, place that in the bottom of the cavity and pack it very hard, putting in considerable more than I want so as to work all the mercury to the top. Then remove a portion of that, cutting down to the hard, solid amalgam where there is no excess of mercury, and I then place the gold on that. The few first pieces are embedded in the surface of the amalgam, and the gold is built upon them. In that way I am positive that the cervical walls of the cavity are perfect and the lower part of the cavity entirely filled, whereas in filling with gold only we cannot always be positive. There are places we cannot see to

fill as they should be filled. We do not know exactly where we put our gold. I think we can save teeth by this mode of filling that would not be saved by the use of gold only.

Dr. J. Allen Osmun, of Newark, read a paper on the legal and moral responsibility of dentists in the administration of nitrous oxide gas.

Dr. Osmun's paper was published in the August number of *THE INDEPENDENT PRACTITIONER*.—EDITOR.

Dr. Stockton.—Without attempting to discuss the paper, I want to say that I would be very glad if Dr. Osmun could be induced to continue the subject, with special reference to the effects of anaesthesia upon the human system, and I offer a motion that he be requested to do so in another paper.

Dr. Stockton's motion was carried.

Dr. Atkinson.—Sometimes circumstances place you in a position where you are supposed to know more than you do know, and if you have the modesty to say so, and confess your ignorance, you will be likely to be esteemed below your merit.

I have no word of anything but commendation for the paper, and the manner in which the subject is treated. I think it argues well for Dr. Stockton to push his mind forward and say there was something more in the same mine whence this was digged, that would lead to something like a scientific apprehension of what we are about when we deprive our patients of consciousness. I do not propose to occupy your time in giving a review of the paper, which is evidently the product of much thought, reading, care, and a keen mental appreciation of the subject.

Dr. Hayhurst.—I know something about the legal points that have been stated, and I know that there is a delicacy in exactly separating what may be termed criminal action from that which is not criminal. We are called upon under almost every circumstance that we can imagine to administer this direful agent, and from dentists all over the land we hear that there is no danger in giving nitrous oxide, and patients, who say; "Doctor, I am perfectly satisfied to take the gas; I have done it so frequently that it is not necessary to go through an examination to find out whether

I am a fit subject or not;" and so you may be induced to chance it. According to the decisions given in the various cases recited in the paper you see how careful you must be to navigate safely between these several points in order to secure yourself against legal prosecution. You have not only your own judgment to insure against fallibility, but your patient is often so anxious to take the gas in order to have a tooth extracted without pain, that he or she will tell you that which is not true in regard to their state of health, and you are often misled. I remember a case where I carefully administered ether to extract some teeth, and it was a successful operation, so the lady told me. Before the administration I questioned the lady, and asked her whether she had consulted her family physician in the matter, and whether she had been under treatment for any disease which might be inimical to ether. She told me she had the concurrence of her physician, and that she had never been under treatment for anything that would interfere. A few days afterwards I heard from an intimate friend of hers that she went home and told, "How I fooled that dentist; you know the doctor has been attending me for heart disease." I said to the lady, "Yes, she imposed upon me, but she did not injure me as much as she might have injured herself by her falsehoods, because her life was in her own hands; she placed it in mine with a lie, and deserved to suffer for it." There are dentists who do little else but administer this agent, and say there is no danger in it, but by the examples given us you will find that it is a very delicate matter. How often have I looked upon the face of a patient as she lay back in the chair, her eyes closed, her countenance pallid, and the marks of death upon her lips, so that any person in the room would suppose that her soul had taken its flight to the regions of eternity; and yet it was not death, but so near it that one may see how nice an operation this is, and how near we tread upon dangerous ground. I call upon all members of the profession to deliberate, and use all the precautions and the very best judgment they have concerning these agents, instead of making wholesale statements that there is no danger in anæsthesia, not because they desire to escape the grappling-irons of the law, but in order that they may be morally blame-

less in their operations. If you do the very best you know how it will not be too good. Nine-tenths of the people who require our services cannot expect to have the highest attainments in dentistry at their beck and call. They must go to New York, Buffalo, Philadelphia, and other great centres of wealth and population in order to get the very best knowledge, but all of you should use to the fullest extent the talents God has given you in endeavoring to preserve the lives and promote the health of the patients who come into your hands.

Dr. Louis A. Reading.—I have had considerable experience in the administration of ether, much more than with nitrous oxide gas. I was called upon a few weeks ago to administer ether to a lady who was to undergo an operation for cancer. The physician in charge had neglected to advise his patient in regard to eating, and she had just taken a hearty meal before we arrived; the operation was to take place at two o'clock, and she had dined at one. The only part I had in the operation was to administer the ether. I proceeded with it quite satisfactorily, but when I was through with the stage of excitement I noticed that she began to be a little nauseated. I discontinued the ether a moment to give her a chance to vomit her dinner. A piece of beefsteak that she was about to throw off got lodged in the œsophagus, and, although it did not stop her respiration I noticed that she was considerably embarrassed, and I called the doctor's attention to it. I got a pair of forceps and grasped her tongue while he removed the piece of beefsteak. I simply relate this case to show the importance of taking precautions before we administer an anæsthetic, particularly ether, and to compliment the Doctor on his remarks upon that point. We all know how important it is to caution our patients not to eat heartily just before taking an anæsthetic.

A motion to pass the subject was carried.

Dr. E. H. Bunting, Senr., read a paper entitled *Æsthetic Dentistry*. (See page 460.)

Dr. Hayhurst—What is æsthetic dentistry? What is beauty? We may say one thing is beautiful or æsthetic, and another person will say another and very different thing is beautiful. The inhab-

itants of certain districts of Asia color their teeth black. Their highest type of beauty would be a set of black teeth ; but that would not pass for æstheticism here. We like white, pearly teeth, perfect and regular, that give a pleasant expression to the countenance, and no marring of nature's mouth-piece shall take place under this idea of æsthetic dentistry. We must go farther back than the treatment the dentist gives ; we must go back to pure lives and simple habits ; back beyond our immediate ancestry, whose "eating of sour grapes caused their children's teeth to be set on edge" ; we must go back to that which produces this characteristic of the American face, the narrow and compressed jaw. As black teeth are now considered beautiful by some, a narrow jaw, and some things that are now abhorrent may some day be esteemed beautiful ; therefore I ask whether there is any standard of beauty except such as is made by habit and education ?

Dr. J. A. Robinson.— I beg to say a word with regard to the meaning of æsthetic. I should define it as that which is perfectly harmonious ; that which corresponds to our highest type of beauty in the civilization of to-day. And while I have been pained at seeing some of the deformities that have been brought about by modern dentistry in the application of artificial dentures, I would say that I believe æsthetic dentistry means that which restores the contour of the face to its normal condition and makes the features of the person as presentable as possible to their neighbors and to the world. I have just come from Boston, and while there I called on a friend whom I had not seen for a few years, and I was struck with her altered appearance. I was almost horrified, for by the application of an artificial set of teeth her face had been so changed and distorted that I almost shrunk from contact and salutation with the woman who had once seemed to me so different. "I said, "what have you done to yourself ? Age could not have made such a change in a face that was once beautiful ! You have had a new set of artificial teeth." I took them out of her mouth, and with a small spirit lamp, a pen-knife and some modeling composition, I molded them over in my hands, attaching to the outside sufficient material to restore the face to its natural fullness and contour, and when I

presented the lady to her daughter and grandchildren they hardly knew her, her appearance was so changed and improved. Therefore, I say that æsthetic dentistry is that kind of dentistry that restores the features, not with pearly white teeth, as has been said here, but with teeth that correspond to the features, and the application of plumpers, if you please, replacing by artificial substitutes what has been lost, so that the person may, as nearly as possible, represent what she did when the natural teeth were in their proper place, and nature had not been distorted by the use of the things that are sometimes worn, and which are very offensive to those who have the least idea of harmony in the human countenance.

(Concluded in October Number.)

AMERICAN DENTAL ASSOCIATION.

FIRST DAY.

The twenty-third annual meeting of this Society was held in the parlors of the International Hotel, at Niagara, commencing Aug. 7th, 1883.

The President, Dr. W. H. Goddard, having died during the year, the First Vice President, Dr. Geo. J. Friedrichs, of New Orleans, presided, and opened the meeting with the customary address.

The President's chair stood unoccupied and draped in mourning, and just behind it hung a picture of the lamented Dr. Goddard, also appropriately draped.

The Executive Committee in its recommendations set apart the time from nine A. M. till two P. M., and from eight P. M. till adjournment for the Association work, leaving the afternoon from two till eight for work in the sections, clinics, etc., etc., the evening session for the first day being omitted. After some discussion the recommendation was adopted.

Dr. Pierce moved to appoint a committee to draft resolutions in relation to the death of Dr. Marshall H. Webb.

Dr. Odell moved a similar resolution in relation to the death of Dr. Wm. H. Allen.

Dr. Rehwinkel moved a similar resolution regarding the death of our late President, Dr. Wm. H. Goddard.

The Publication Committee reported that the proceedings had been printed by the S. S. White Manufacturing Co. without expense to the Society, they having been given the exclusive right to the publication of all papers read.

SECOND DAY.

The meeting was called to order by the acting President, Dr. Friedrichs.

Dr. Pierce, Chairman of Committee on Resolutions concerning the death of Dr. Webb, reported, and was followed by some eulogistic remarks in relation to the life of Dr. Webb, by Dr. J. Taft.

Section V was called upon but not being ready, Section VI—Pathology, Therapeutics and Maderia Medica—was called, and response made by the Secretary, Dr. Dudley, who announced two papers as ready for presentation, one on "Syphilitic Teeth," by Dr. G. A. Friedrichs, of New Orleans, and one by Dr. A. W. Harlan, of Chicago, on "Treatment of Pyorrhœa Alveolaris."

The first mentioned paper was then read and discussed at considerable length.

Dr. Abbott said the distinctive appearance presented by syphilitic teeth is as though they had been turned upside down, having square crowns, or rather with the end smaller than the neck.

Dr. Barrett had watched to find the "creases" that have been charged upon syphilis, but is satisfied that there is no such thing as a true, unvarying syphilitic type of teeth.

Dr. Darby spoke of some models which he has made (he regretted that they were not at hand to exhibit) from the teeth of people in the lower walks of life, which he considered to be a strong point in favor of the truthfulness of the record, wherein the distinctive character of the teeth might be studied and the origin of the abnormality in syphilis authenticated.

Dr. Pierce said the paper presented us the facts as we have them in literature to-day. Observation has taught dentists that other causes produce these appearances upon the teeth.

Dr. Atkinson here put in a plea for the study of Embryology and Histology.

Dr. Harlan's paper on "Treatment of Pyorrhœa Alveolaris" was then read, giving the author's experience during the past ten months in the treatment of many cases of this disease, and claiming a complete success in nearly every instance. He first thoroughly removes the deposits with instruments, then with cotton wrapped upon the end of an appropriate broach he rubs the exposed roots and necks of the teeth thoroughly, the cotton being from time to time dipped into a solution of iodo-chloride of zinc, after which he injects into each pocket dioxide of hydrogen ($H_2 O_2$), this being a most powerful germicide, and a diagnostic agent of the first importance in detecting the presence of pus. The pockets being first carefully dried with absorbing cotton, any pus remaining or exuding will cause the $H_2 O_2$ to effervesce, so that the eye can readily perceive it.

Treatment at intervals of four days will usually effect a radical cure in from three to four applications.

Dr. Bodecker.—I have been studying this subject for years. It is not certain that bacteriæ produce inflammation; they are always present as the result, not necessarily as the cause. Antiseptics are, of course, needed, but only in their mildest form.

The preparation of zinc recommended, although valuable, if too freely exhibited, will produce injury. I use first the iodo-chloride of zinc, following with a solution of tartrate of chinoline of the strength of one dram to two oz. of water. Have seen results under this treatment that were simply marvelous.

Dr. Darby uses iodoform for this purpose, and also finds the same application of great service in the treatment of odontalgia, although its odor is a serious objection to its use. As another remedy of value employs saltpetre, or ordinary nitre. Has had the best of results by its use.

Dr. Abbott.—The best remedy I have ever used in this disease is properly handled instruments. I find little necessity for anything further.

Dr. Atkinson.—I see always a disposition to push the inquiry to the ultimate. Are the hard tissues well understood?

Inflammation is never anything but an arrest of nutrient activity. There is always a great disposition on the part of very sharp minds

to say: "I do not believe it." If we fulfilled all the demands of the body we would have no disease at all. Statistics are all well enough if faithfully made, but require proper interpretation. We need not say, "we hope to get new process;" we *can* get it!

Dr. Abbott.—Am sorry that our friend Atkinson did not follow back the changes of tissue to its embryonal conditions, in rebuilding from which you will get the reproduction of alveolar process.

After some further remarks by members the subject was passed.

Dr. Bodecker, of New York, read a paper on "The Action of Arsenious Acid upon Dental Pulp Tissues." He requested that discussion upon the subject be deferred until members had had an opportunity to examine with the microscope some specimens which he had brought for the purpose of illustrating points in the paper.

An abstract of Dr. Bodecker's paper will be found upon page 468 of this number.—EDITOR.

Dr. Richardson, of London, Eng., was introduced to the Association, and granted the privileges of the floor.

Dr. Odell, Chairman of Committee on Resolutions in relation to the death of Dr. Wm. H. Allen, reported appropriate resolutions and followed their reading by an historical sketch of the deceased. It was voted that a memorial page be inserted in the transactions.

Dr. Rehwinkel, Chairman of the Committee on Resolutions in relation to the death of Dr. Wm. H. Goddard, also reported suitable resolutions.

Dr. N. W. Kingsley was then, by resolution, requested to address the Association upon the subject of "Articulate Speech," which he proceeded to do, illustrating his remarks by means of the black-board.

THIRD DAY.

After the transaction of the general routine business, Dr. Pierce, Chairman of the Committee on Prize Essays, reported as follows:

"Your committee to whom was assigned the duty of deciding upon the merits of essays upon 'The Etiology of Dental Caries,' offered for a prize of two hundred dollars, which was last year appropriated by this Association for the purpose, would respectfully report that

but one essay has been received, and that from the hands of Dr. W. D. Miller, of Berlin, Germany.

The committee have carefully read this, and while the views contained therein are not all original, many of his experiments, which are in detail and made for the purpose of confirming his theory, have not been previously published. Your committee, would, therefore, in view of the original work which the author has prosecuted the last two years, the results of which are given in this paper, award to the essayist the two hundred dollars appropriated for the purpose." The report was adopted.

Section VII—Physiology and Etiology—was then called and the Chairman read the report, but announced that there were no papers belonging to the Section to be read.

Section I being called—Artificial Dentistry, Chemistry and Metallurgy—the Chairman, Dr. T. L. Buckingham, read the report. He announced that the Section had no papers to present, but opened the discussion by some remarks upon chemistry.

Dr. E. Parmly Brown presented some new crowns for natural roots, consisting of a plate of platinum with enameling to represent the visible portion, the interior to be filled with amalgam or any other desired material with which to make the attachment.

Section II—Dental Education—was called and the report was, in the absence of the Chairman, Dr. L. D. Shephard, read by Dr. Pierce. He said that one paper had been presented, but on account of its general character it was not recommended to the Association. He presented also the following resolution, which was amended and finally adopted as follows:

Resolved, that the interests of the profession and advanced dental education both demand that all dental educational institutions shall require that every student, before being admitted to examination for the degree of Doctor of Dental Surgery, shall have taken two full courses of lectures.

Dr. Pierce also offered the following, which was passed:

Resolved, That the American Dental Association deems it adverse to the interests of the dental profession for any State Board of Examiners to confer a title or degree of any nature.

Dr. Buckingham thought that a professor in a Dental College should not be a member of any State Board.

Dr. Rehwinkel explained the difference between the diploma of a college and the certificate of a State Board of Censors.

Dr. Pierce believed that the time would come when the State Board could be abandoned.

Dr. Allport thought that as the standard of dental education was raised there would be an increased necessity for dental examining boards.

Dr. Hayhurst spoke strongly in favor of the colleges, and reminded members that a State Board certificate was mere waste paper outside the State where it was granted.

Dr. Odell desired that the paper upon education be read.

Dr. Crouse objected.

Section III was called—Dental Literature and Nomenclature—and the report was read by Dr. J. Taft, Chairman. Two papers were presented, one by Dr. Atkinson, and the other by Dr. G. J. Friedrichs, both of which were read. The Chairman said that he had mislaid a paper by Dr. Francis, but he would forward it in time for the general report.

Dr. Crouse said that there were not more than fifteen thousand dentists in the United States, and he was in favor of weeding out most of the dental journals; that one journal well boiled down, and containing a condensed mass of literature, was all that was needed.

Dr. Abbott said that nearly all dentists were now taking dental journals, and that the call for a literature was increasing. There can be no liberal profession without a literature, and it would be a black day for dentistry when the views of the last speaker prevailed, for it would carry us back into the dark ages, the time of usurpations, and monopolies and inquisitions. In this day intelligence is free, and it is mainly disseminated through the means of a periodical literature.

At the evening session the regular election was held, which resulted in the choice of Saratoga as the next place of meeting, and the following list of officers:

President—Dr. E. T. Darby, Philadelphia, Pa.

1st Vice President—Dr. C. S. Stockton, Newark, N. J.

2nd Vice President—Dr. T. T. Moore, Columbia, S. C.

Cor. Secretary—Dr. A. W. Harlan, Chicago, Ill.

Rec. Secretary—Dr. Geo. H. Cushing, Chicago, Ill.

Treasurer—Dr. Geo. W. Keeley, Oxford, Ohio.

Executive Committee—Dr. G. J. Friedrichs, New Orleans, La. ;
Dr. S. G. Perry, New York, N. Y. ; Dr. W. N. Morrison, St. Louis,
Mo.

The President appointed as the local committee of arrangements :

Dr. M. L. Rhein, of New York.

Dr. F. M. Odell, of New York.

Dr. C. F. Rich, of Saratoga.

FOURTH DAY.

After the officers elect were installed, the salary of the Secretary was increased to \$200 per annum.

Section IV—Operative Dentistry—being called, the report was read by Dr. E. T. Darby, the Chairman. The discussion was extended, but somewhat desultory.

After the reception of the final reports the customary votes of thanks were extended to all to whom the Association was indebted for courtesies.

The regular order of business was then suspended, and the resolution awarding the prize for the essay upon Etiology was reconsidered, and referred back to the committee for another year.

After reading the minutes of the morning proceedings, the Society adjourned for one year.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

Just in time for insertion in the last form, we have received the following letter, which explains itself. —EDITOR.

I have just returned from the meeting of the American Dental Society of Europe, at Cologne. The sessions lasted for three days, the 7th, 8th, and 9th of Aug., the same days on which the American

Dental Association met at Niagara. The meeting was one of unusual interest, and the attendance was the largest ever known, nearly every country in Europe being represented. Among the guests, who are always heartily welcomed, was Dr. Joseph Walker, President of the Odontological Society of Great Britain. * * * * *

Dr. Elliott's very valuable experiments on amalgams were especially interesting.

Dr. Jenkins, the champion of intelligent bridge work in Europe, was also there, and treated the Society to some very useful hints.

Dr. Miller was, of course, present, with a few of his preparations. He thinks he has, by hard work and purely scientific experiments, furnished a definite solution of the following points in the Etiology of Dental Caries:

1. The first step is an almost *complete* decalcification of the tissue by acids, resulting, in the case of enamel, in its entire destruction.
2. Following the decalcification, (often far behind it) is the destruction of the *decalcified* tissue by micro-organisms.
3. The fact that an artificial caries identical with natural caries may be easily produced, renders untenable the idea that inflammation is necessary to caries.

According to Dr. Miller, there remains to be solved the questions: *What is the acid or acids of caries? How is it produced? Do fungi produce or help to produce it? If so, what fungi, and how is their development in the mouth to be hindered?*

I do not propose, however, in this letter to give even a synopsis of the work done at the meeting. I hope within the next few days to send you a full report of the proceedings.

The latter part of the afternoon, and the evening of the second day, were devoted to an excursion, *en voiture*, along the banks of the Rhine, to a neighboring village, where a grand banquet had been prepared. You will recall a similar occasion two years ago.

The American dentists in Europe are hard workers, but they haven't forgotten how to have a good time, and when they set aside one evening in the year to the latter purpose it is apt to be a success. At least it was so on this occasion. The festivities were

accompanied by music, illuminations, fireworks, etc., etc., and enough funny speeches were made to last for a year, and make us all long for the next annual feast, which is to be held among the mountains of Switzerland. The ceremonies were conducted by Dr. Patton, of Cologne, in a manner worthy of the reputation which he enjoys among the American dentists on this side of the great waters.

The following officers were elected for the year '83 and '84 :

President—Dr. W. D. Miller, Berlin.

Vice President—Dr. H. C. Edwards, Madrid.

Secretary—Dr. F. Forster, Berlin.

Treasurer—Dr. Wm. Patton, Cologne.

Microscopist—Dr. W. D. Miller, Berlin.

Editorial.

THE AMERICAN DENTAL ASSOCIATION.

The twenty-third annual meeting of this Society was chiefly remarkable for that in which it should take least pride. It would be much more agreeable, from many considerations, to give nothing but commendation, or in silence to pass over the faults exhibited ; but a journal that professes to speak for the whole profession owes its first duty to its readers, and so plain words are best.

There was no lack of numbers present, nor was there anything of moment to mar the harmony of the proceedings. But the general tone of the meeting was not what the representative association of so large a profession, one which embodies so much of professional learning and personal intelligence, should exhibit. Some of the papers read showed thoughtful consideration and careful research, but the most of the few presented were far below the standard of a national congress of dentists. Nor were the discussions as a whole what they might have been. Too many members talk, not because they have something to say, but to exhibit themselves ; to hear their own voice, and to be put upon the record as having

spoken, even if it were nothing but platitudes. It was really painful at times to see men buffet and belabor their brains, when their pump perceptibly "sucked air." Many of those who occupied valuable time showed that they had very little appreciation of the subject under consideration. But that is a fault that is not confined to the A. D. A., as all attendants upon medical and dental meetings will testify. When really scientific matters were discussed there seemed to be an impatience manifested, and members plainly indicated their lack of interest, and their desire to return to general subjects, or to fly the track entirely and commence the everlasting topics of ethics, by-laws, etc. When the representative dentists of America get together they should busy themselves with something more weighty than matters of detail.

The subject of education always occupies much time, and it is occasionally amusing to see the class of dentists who are the most clamorous for an advanced standard, and who most severely take our colleges to task for their shortcomings. Some of these purist critics are men without any degree at all, and some are quite incapable of constructing a grammatical English sentence. Yet they are among the most vociferous in their outcry for a "higher standard." Our colleges doubtless might be made much better, but they are fully up to the present status of the profession as a whole, and deserve commendation for what they have accomplished, rather than indiscriminate vituperation and harsh criticism, especially if it comes from those least competent to sit as judges.

The Association is afflicted with a class of politicians, who apparently attend its meetings for the mere pleasure of pulling the wires. Most of the older members go there to exchange views upon matters of professional interest, and are quite willing to leave to partisans the self-elected task of running the "machine." These men are useful in their way, and certainly some one must look after routine matters; but when they interfere with scientific affairs it is time that a halt was called.

One thing transpired at Niagara that has grieved many, and we cannot but think has tarnished the good name of the Association. We do not propose to set up as a censor of professional morals, nor

do we make any personal charges whatever, for we were not present when the action was taken, and have no knowledge therefore concerning who was responsible for what, as we look at the matter, was an outrage upon the rights of the majority, and a blot upon the fair fame of the Society.

Last year the Association announced that it would award a prize to the author of the best essay upon a certain subject, provided it come up to a certain standard. It appointed a prize committee to whom it delegated its authority, and it empowered them to act as judges in awarding the prize. At the Niagara meeting this committee reported that a paper had been presented which conformed to the conditions, came up to the designated standard, and they therefore awarded the prize to its author. The sole question before the Society then was: shall the report be accepted? If it were, according to all precedent and good usage, the matter was ended. If the report were rejected, the Association had done something which it was quite competent to do, but which could not be done without marked discourtesy to its committee, and great injustice to those most nearly concerned. In a very full session, with nearly all the members present, the report after due consideration was adopted with but one dissentient voice. This was well. But just at the close of the last session, held after most of the trains which were to carry members to their homes had gone, and when but a very few, scarce a tenth of the members were present, this action was reversed, and the paper referred back to the committee for another year. Of course every one knows that no progressive man, in the present wonderful growth of professional knowledge, would be willing to have presented as his views something that he had written more than a year before, and therefore this was an act of great injustice to the author. Besides, the Society had pledged itself that under certain conditions it would award a prize. Those conditions were fulfilled, according to the report of its own accredited judges, when a mere minority assumed to override the expressed opinion of the members, repudiate a just obligation, violate the pledge made the previous year, and thus tarnish the Honor of an association of honorable men. When

reasoned with concerning this breach of good faith, the answer was returned, that the majority should then have staid until the close of the proceedings. And is the A. D. A. then, but a caucus of demagogues? Is it but a smart trick to overrule by sharp practice the will of the majority? Are not the members men whom it is safe to trust in the dark, or are they people who cannot be depended upon lest at an unguarded moment they spring a trap upon the unwary?

We do not think such an answer will be accepted on the part of those then present. It would rather appear that, with most of them, it was an act thoughtlessly done, without due consideration of the consequences, but unless their action be, at the next meeting, repudiated, the A. D. A. will scarce be worthy the consideration which ought to be accorded to it.

If this action be due to some of those exceedingly sharp men who forget that the American Dental Association is composed of gentlemen, and is not a political caucus which it is a smart thing to manipulate; if they imagine that they have any prescriptive right to dictate a policy for their compeers to follow, they would do well to consider the story of the historical fly. We will tell the tale for the benefit of whom it may concern.

A fly upon the rim of a carriage wheel was complacently contemplating its own importance and the surrounding scenery. "See" it said "how everything in nature revolves about *me*." Just then the wheel struck a stone, and the concussion seriously disturbed its equanimity. "What a convulsion of nature," was its comment. "If this occurs again I will get off, and then what will become of a Universe deprived of its centre."

What we have said we hope will not be misunderstood. It is spoken in no cynical, carping mood, but because we love the American Dental Association, and are loyal to it, and have at heart its best good. We desire it to be worthy the name of the representative association of America. We thought that this journal ought to give voice to the expression of many dentists, and therefore we have written this article.

We had it in mind to speak of the *good* things of the meeting, of

the rare good-fellowship exhibited, and the kindly personal feeling manifested by members toward each other, but we have taken it all out in growling, and there is no space for felicitation.

THE PEARL IN THE OYSTER.

Sometimes the most useful suggestions and ingenious contrivances are obtained from the most unlikely sources. A sharply observant dentist chanced not long since to stray into the office of a confrere who was located in a country hamlet, and he confessed himself astonished at the originality and fertility of resource observable in his self-taught acquaintance. The man was filling a tooth, and was using a piece of rubber-dam that was old and rotten. Into two or three holes through it he had stuffed some cotton dipped in a solution of gum-sandarach, which had effectually stopped them. But as there were yet leaks, he had rolled up half a sheet of bibulous paper, stuck one end down between the teeth, and that was acting as a capital siphon to draw off the saliva.

Not having a patent air-syringe he was using a common chip-blower, the nozzle of which he held near and just above the flame of his alcohol lamp, and thus he obtained heated air. "Everything in the office," said Dr. Frank Darby, the visitor, "evinced the same originality of contrivance in overcoming his lack of modern conveniences, and notwithstanding the absence of many instruments that are considered essential to successful practice, he was, through innate mechanical genius, doing excellent work."

CORRECTION.

Last month we printed articles from two of our most esteemed exchanges without the appearance of the proper credit. We are sure that it was appended in the "copy," but it dropped off somewhere in the printing office. Our readers will therefore take notice that the extract in the August number headed "Facial Neuralgia," was from the July number of "THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES"; and one entitled "Dropsy of the Antrum"

was taken from the "THE CANADA MEDICAL AND SURGICAL JOURNAL."

TO SUBSCRIBERS.

We have reason to believe that some of our subscribers do not receive the PRACTITIONER regularly; indeed, in view of the changes that have been made during the last three months, it would be strange if some errors had not crept into the books. If any such there be, we shall be glad to receive notice of the fact, and will try and apply the remedy.

New Appliances and Materials.

ENAMEL CHISELS.

For a short time we have been using a set of Dr. E. Parmly Brown's Enamel Chisels, and now wonder how we have been all our life doing without them. There are six in the set, and each has double ends, making twelve chisels altogether. Their forms are quite unlike any others that we have met, and they are adapted to every position in which they might be needed. At first view they appeared too large and heavy, but experience has taught that this was a mistaken estimate. Their temper and workmanship are all that can be desired, and they are valuable assistants to any one who wishes to perform thorough operations.

IMPRESSION CUPS.

Some years since Dr. Gunning devised peculiar forms of trays for obtaining impression of cases demanding the application of the interdental splint. They have never been kept in stock at the dental depots, and their existence was unknown to many. Lately, Dr. J. A. Bishop, of New York, believing that they would be found useful in many ordinary cases, had a number of them made by the

Meriden Britannia Metal Co., and they may now be obtained by writing to Dr. Bishop. They are deeper than the ordinary lower impression cup, and are perforated. They will be found especially convenient in the use of the modeling compounds, which so readily leave the cup when in the mouth.

LISTERINE.

Although this is not a new remedy, yet we believe its use in dentistry is comparatively novel. It is largely employed as an antiseptic for lotions and for surgical dressings in medical practice, and it will be found quite as useful in the dentist's case. We have for some time been using it in carious teeth, for dressing operative wounds in the mouth, and as a gargle in cases of ulcerative sore throat. We have injected it into alveolar abscesses, and have employed it to neutralize an offensive breath in patients. It is especially grateful as a mouth-wash after the extraction of teeth. It may be employed in full strength, or in various degrees of dilution with water. It is not a secret preparation, but its formula may be found printed upon the label of every bottle. We commend it to the use of dentists.

Bibliographical.

Microscopical Diagnosis; by CHAS. H. STOWELL, M. D., and LOUISA REED STOWELL, M. S. Detroit: Geo. A. Davis, Medical Publisher. Price \$3.00

This is a very handsome, large octavo volume of two hundred and fifty pages, illustrated with one hundred and twenty-eight engravings on wood, and forty-seven on stone. The authors are well known in the profession, and to microscopists generally as the editors of "The Microscope," a bi-monthly journal devoted to the use of the microscope in practical medicine and pharmacy.

The book is divided into three parts; the first, by Dr. Stowell,

treating of the use of the microscope in the examination of blood, epithelium, tumors, sputa, urinary deposits, etc.

The second part, by Mrs. Stowell, is chiefly devoted to pharmacy, and the study of vegetable histology, with special reference to foods and medicinal plants.

The third department is by Mr. Wm. H. Walmsley, of Philadelphia, who is well known as an expert manipulator of the microscope, and it is devoted to the preparation and mounting of microscopical objects.

All the parts are well written, and contain information that is indispensable to the really successful practice of any department of medicine. As a work of ready reference it is especially useful, because of the profuse illustrations of microscopical tissues and deposits. It is very handsomely printed and bound, with sides and back embossed in black and gold.

Current News and Opinion.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The meeting of this Society for the year 1883, under the Presidency of Prof. C. A. Young, of Princeton, was held at Minneapolis, Minn., from August 15 to August 22. The Association is divided into nine sections: A, Mathematics and Astronomy; B, Physics; C, Chemistry; D, Mechanical Science; E, Geology and Geography; F, Biology; G, Histology and Microscopy; H, Anthropology; I, Economic Science and Statistics; and thus it insures to its members all possible opportunities to meet those who are following the same lines of research. The majority of the sections held active and interesting sessions, particularly those of Geology, Biology, Anthropology, and Physics, while Mechanical Science and Economic Science consumed the largest amount of time in organizing and preparing for work, of which there was little done that was worth mentioning. The poorest section of all is that of Microscopy and Histology, and for good reasons. Unless the term

Microscopist includes all those mere manipulators of the instrument who make a toy of it, and exhibit indifferent objects for the inspection of the curious, there would seem to be no necessity for the existence of such a section. If we investigate with the microscope animal or vegetable parasites, high or low forms of life, the work properly belongs in Biology. If sections of stone or fossil be studied, we are working in Geology. There is no place for microscopy, unless it be in the study of the instrument itself, for, properly used, it is but a tool with which to investigate certain fields of science. It is little wonder, then, that scientists who are pursuing their work through the microscope should prefer membership in the American Society of Microscopists.

The citizens of Minneapolis extended unusual hospitalities to the members of the Society, and many of the latter went to their eastern homes with ideas of western life somewhat modified.

The next annual meeting will be held in Philadelphia, with Prof. J. P. Leslie, the State Geologist of Pennsylvania, as President. This meeting promises to be of special interest, as the British Association is expected to meet in Montreal in 1884, and the American scientists will extend a cordial invitation to their British brethren to come from there to Philadelphia.

AMERICAN SOCIETY OF MICROSCOPISTS.

The sixth annual session of this Association was held in the city of Chicago, commencing Tuesday, Aug. 7th, and continuing four days. It was unfortunate that it was called for the same date as that of the meeting of the American Dental Association, as a number of gentlemen hold membership in both. The Society is young, but it has made very rapid progress in the scientific world. The late meeting was a very successful one, whether we consider the number of members in attendance, the zeal and enthusiasm manifested, the social enjoyment and fraternal feeling which marked the occasion, or the amount of real commendable work done.

Prof. Albert McCalla, of Fairfield, Iowa, was the President, and Prof D. S. Kellicott, of Buffalo, N. Y., was Secretary.

There were more papers presented than there was time to properly consider, and several of them were merely read by title and referred. Some of the essays were of unusual merit, particularly those of Prof. Rogers, of Cambridge.

One good thing done was the adoption of a standard micrometer, which will, it is hoped, reduce the confusion that has heretofore reigned supreme in microscopical measurements.

The Royal Microscopical Society of England, having extended recognition by the adoption of a resolution making the President of the American Society an ex-officio fellow, the Chicago meeting returned the compliment by electing the President of that Society to honorary membership.

Hon. J. D. Cox, of Ohio, a well-known and enthusiastic microscopist, was elected President for the ensuing year, and Prof. Kellicott remains the very efficient Secretary. The next meeting will be held in Rochester, N. Y.

NOVEL LARYNGOSCOPE.

Dr. Thomas Dimock, in the *Therapeutic Gazette*, details a new method of examining the throat. Place the patient before a good light, depress the tongue and request him to yawn. The larynx immediately rises up, the velum palati is lifted and the anterior and posterior pillars widened, exposing the back of the tonsils and the pharynx. The nose should be held to compel breathing through the mouth.

NEW COLLEGE.

A new medical college has been organized in Buffalo. We ought to be thoroughly taught, medically, for there are now three colleges in the city. The faculty of the new institution comprises some excellent names, while there are other chairs that will be occupied—not filled. Upon the whole it is a better faculty than one would have thought it possible to organize in Buffalo, outside of those engaged in other schools.

TRANSACTIONS OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

The undersigned would like a dozen or more copies of the transactions of 1869-70; also a few of 1871-2, and 1873-4. If desired, will give in exchange copies of 1875-6, or 1877-8, or 1882-3, which last will be issued on or about October 1st of the present year. Send transactions to, or address,

J. EDWARD LINE, Secretary,
Rochester, N. Y.

PAINTING TEETH.

Sometimes it is difficult to obtain artificial teeth having just the shade desired. Prof. T. L. Buckingham recommends that in such cases a tooth be painted the desired color with common oil paints, and that then it be heated in a common crucible and the tints thus burned in. A little practice will, he says, enable one to obtain any unusual color, and thus correctly to match any of the natural teeth.

DENTAL LEGISLATION.

Michigan now has an excellent dental law, and that State henceforth ceases to be a harbor of refuge for the expelled quacks of other States. Illinois, too, has been added to the number, and so the work goes on. We are not of those who believe that dentists can be made by legal enactment, but a certain class of so-called dentists can and should be un-made by it.

RESIGNED.

Prof. John C. Dalton, so long and favorably known as a teacher, has resigned his professorship in the College of Physicians and Surgeons of New York, on account of ill health. The thousands of admirers of Dr. Dalton will sincerely hope that this does not mean a relinquishment of the active part in professional matters which he has always taken.

NEW BOOK.

Surgeon-General Wales is preparing an original work upon Diseases of the Rectum, etc. The readers of the INDEPENDENT PRACTITIONER know how thorough the work will be, from a perusal of his article on "Abscesses of the Ano-Perineal Region," contributed to and printed in the May number.

THE OHIO JOURNAL.

Dr. JUNIUS E. CRAVENS has joined the editorial staff of the *Ohio State Journal of Dental Science*, and has opened a new department, "Varieties," in which will be found his contributions. His initial, in the August number, is both spicy and instructive.

EDITORIAL CHANGE.

Dr. L. S. McMurtry has retired from the Associate Editorship of that excellent weekly, *The Louisville Medical News*, and Dr. H. A. Cottrell, formerly associated with the *Journal*, succeeds him.

CALLED.

Dr. A. J. C. Skeene has been added to the faculty of the New York Post Graduate course. His department will be Gynæcology.

Selections.

OZONE AS ANÆSTHETIC AND HYPNOTIC.

Prof. Binz, of Bonn, has made a series of experiments upon the physiological effects of pure ozonized air. He did not prepare the ozone which he employed by chemical means, as ozone prepared in this way contains many impurities, but by electricity, using a tube made by Werner Siemens for the silent discharge. The tube was an inch in diameter and a foot long, and was operated with four Bun-

sen cells, and an induction cell that would give a spark nearly an inch long when the battery was in good order.

The ozone tube was connected with a chloride of calcium cylinder, charged with eight inches of coarsely powdered chloride of calcium between plugs of glass wool. The air to be ozonized had to pass through this tube, which filtered and dried it sufficiently; the former is of importance for the purity of the ozone, the latter for the quantity.

The ozone thus prepared, when conducted into water recently distilled over permanganate of potash and then made slightly alkaline, did not show a trace of nitrous or nitric acid. A second experiment gave the same result.

We cannot go into all the details of the precautions used in its inhalation and the apparatus employed. Experiments made upon the lower animals showed that an apparent sleeping state could be produced before the air passages were irritated by it, and this was more distinctly noticed in men. The breathing before sleep began was quiet and full; the persons experimented upon said that it was easy and comfortable, and the passage from the waking to the sleeping state was a feeling of the most agreeable indifference. The pulse never exhibited any perceptible change during the experiment, nor was there any alteration in the pupil of the eye or the color of the face. If the quantity of ozone inhaled is too large, from the apparatus working too fast or the tube being too near the nostrils, it may excite very violent coughing, nausea and choking, but not the slightest sensation of local irritation in the chest is perceived.

In all observations hitherto made as to the effect of ozone on men, they have only described the irritating effect on the air passages, resembling those of chlorine. The reason of this was that the ozone was not mixed with air in suitable proportions, and in most cases also to impurities in the ozone used. In the former respect Binz compares ozone to alcohol, which used in its concentrated form irritates the mucous membranes violently, destroys the epithelium, coagulates albumen, etc., but when very dilute scarcely exerts any perceptible influence on them.

Owing to the very transitory effect of ozone, it will never take the

place of nitrous oxide for anæsthesia for surgical purposes. Binz himself does not lay much weight upon the practical importance of the ozone sleep, but hints that further experiments in this direction may lead to important results.—*Pharm. Centralhalle*.

Physicians are aware that the air of mountains exercises a hypnotic and exhilarating effect, probably due to the larger proportion of ozone which it contains. Has any one experimented with the latter as a remedy for insomnia?—EDITOR.

THE LIFE OF MAN.

Man, born of woman is of a few days and no teeth. And indeed it would be money in his pocket sometimes if he had less of either. As for his days, he wasteth one third of them; and as for his teeth, he has convulsions when he cuts them, and as the last one comes through, lo, the dentist is twisting the first one out, and the last end of that man's jaw is worse than the first, being full of porcelain and a roof-plate built to hold blackberry seeds.—*Burlington Hawkeye*.

NERVE INSTRUMENTS.

In case a broach is broken off and remains fixed in the pulp canal of the tooth, so that it is impossible to remove it by mechanical means, pack the cavity with common salt, seal with Hill's stopping and let it remain two or three days, when the broach will be found to have become an oxide, and can be easily removed by thoroughly syringing the cavity with water.—*New England Journal Dentistry*.

FRECKLES.

Freckles can be removed, according to Dr. J. V. Shoemaker, by the careful application of a little ointment of the oleate of copper at bed time. He makes the ointment by dissolving the oleate of copper in sufficient oleo-palmitic acid to make a mass.

NOTCHED TEETH.

In a paper read at the "Société de Chirurgie," of Paris, M. Magitôt, says the *British Medical Journal*, lately called attention to the notching and erosions of the teeth in inherited syphilis, and on the relations of this disease to rickets. He thinks that the notch is not characteristic, and states that it is never found in some races frequently affected by syphilis, such as the Japanese and Peruvians. According to Magitot, not only inherited syphilis, but also all other serious troubles of nutrition, may cause diminution in the number and size of the teeth, or delay in the period of their eruption, but never erosion. Most frequently the latter is caused by certain nervous affections of early childhood, such as infantile convulsions, especially when accompanied by general debility.—*N. Y. Medical Journal*.

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Original Communications.

AN EXAMINATION OF THE CONDITION OF THE TEETH OF
CERTAIN PRE-HISTORIC AMERICAN RACES.

BY DR. W. C. BARRETT, BUFFALO, N. Y.

In the consideration of the Etiology of Dental Caries it is necessary to inquire into its history, because a disease which is entirely modern in its origin must necessarily be due to some changed condition under which the human race is now laboring, and this new situation being duly examined may afford a clue to the altered pathological state of the teeth of the present day. It has been urged with much ability and seeming consistency that dental caries is due to the changed habits of man; to our modern artificial methods of living; to an unnatural diet; to improper preparation of the food; to the removal of necessary ingredients from otherwise wholesome sustenance; to vicious nutrition through improper habits; to a perversion of neural currents through an unnatural mode of life; in short, to a departure from the state of nature in which man was made to live. If this be true, we have only to go back and examine the skeletons of those who were guilty of none of these things; who lived directly on the breast of mother nature; who ate their food with little or no preparation by fire; who devoured all there was of it without the removal of certain portions through the aid of machin-

ery; who were not subjected to the modern abominations of corsets, swallow-tailed coats, stove-pipe hats, or other articles of modern clothing; who were free from the poisonous fumes of box stoves and modern furnaces; upon whom the winds of heaven blew untempered at all seasons of the year; who knew no doctors, drugs or dosing, except the simple remedies provided by a bountiful nature; who, to sum up all, were delivered from the destroying influences of a modern civilization: if this be true, I say, the remains of the happy people who lived in the blessed time of pre-civilization will indicate their freedom from the diseases which are so destructive to-day.

In the summer of 1882 I chanced to visit the Peabody Museum of Archæology, at Cambridge, Mass., and was so impressed by what I saw there that I made the firm resolve to return when I had more leisure, and make a more careful study of the archæological treasures therein contained, with a view of obtaining more light upon the vexed question of the etiology of dental diseases. Accordingly, in June last, I went to Cambridge and did what I could in the limited time at my disposal, and I propose in this article to give the results of my visit. I found, however, that I had devoted but a small portion of the time necessary to even a cursory examination of the collection. I propose at some time to continue the work, and hope to be able to present something yet more definite and conclusive.

Everything connected with the subject which I wished to investigate was placed at my disposal by the courteous curator, Mr. F. W. Putnam, who is so well known in the ethnological world. I found that I was treading virgin soil, for although this museum is situated at that great educational centre, Cambridge, no one had yet attempted to make any study of the teeth there.

The upper floor of the museum contains nearly two thousand skulls, and the collection is especially rich in the remains of pre-historic American races. There are many skulls of moderns, but my attention was chiefly directed to those of the North American Indian, to those of the ancient mound-builders of the Tennessee region, to skulls found in ancient Mexican caves, to some from California, to a large number obtained from ancient burial places near Ancon, Peru, to some other South American skulls, and to a

collection of early Sandwich Island skulls. Besides this, I examined, as far as time permitted, some Roman skulls of the early Christian period.

It will be observed that with the exception of the Roman skulls, and perhaps a few of the north-western Indians, the people of whom these bones were relics lived before the time of contact with the whites, and were therefore pre-historic. They were not contaminated by the vices of our modern civilization, but lived a life that was as near the typical natural one as the most conservative foggy could desire. Some of them had a climate that was as near perfect as this globe affords. Nearly all of them lived in regions that furnish the most prodigal display of natural nutritious foods. The diet of some must have been almost exclusively vegetable, while the North American races existed mainly by the chase, and their food was mostly animal. Some of the races lived in huts formed by the branches or bark of trees, some in natural or artificial caves, while others had their habitation in a snowless and rainless region, and hence needed no protection from the weather, and their days and nights were passed almost exclusively in the open air. They had no mills to grind and bolt their grain into flour, and they were destitute of the condiments and palate stimulants of the present day. They drank no spirituous liquors, and only a portion of them used tobacco, and then only to smoke it in great clay pipes which must have extracted all the nicotine by absorption. They were clothed either in the skins of wild beasts, or the vegetable fabrics which their limited manufacturing skill enabled them to make, while some of the tribes were probably as ignorant of raiment as Adam and Eve before that wonderful serpent interviewed them.

Here were various races of people who were quite free from the "vices of civilization," who lived in that happy primeval state of which poets love to sing, and some of our retrospective modern dentists to preach. Surely, if happiness, innocence and freedom from disease are to be found—

"The heart that is humble might hope for it here."

What did I find? Allow me to say that I went there a believer in the modern origin of dental lesions. I was firm in the faith that

tooth-ache and stomach-ache and most other aches are due to our sins; that the human race is gradually deteriorating, and that man as he departs further and further from nature's simplicity and surrounds himself more and more with the concomitants of a high civilization, as his life from generation to generation becomes increasingly artificial, so do his bodily ills increase, and diseases multiply in number and virulence. I had long been accustomed to tell my patients that were it not that the dentist's skill kept pace with the alarming increase of dental diseases, and were the law of heredity to continue in full geometrically-progressive force, the human race must in a very few generations become edentulous. These theories were the result of my own reasoning, evolved from my inner consciousness, the fruits of pure logic, the results to which indisputable mathematical equations must infallibly lead. Like many another man whose theories are the results of chamber toil, when I put myself face to face with the records of actual fact I found that my fine-spun hypotheses would not hold water, and I dropped them at once, and again resolved for the thousandth time to speculate less and to examine more.

With the exception of the syphilitic diseases, there is not known to-day an oral trouble which all these nations were not familiar with, in its most exaggerated form. I say with the exception of syphilis, for in all those skulls I found but one that bore unmistakable traces of that dread scourge, and it was not at all certain that this was not intrusive and belonging to a later period. This anomaly was found in a cave in Mexico, but it so differed in type from those found with it, and the cave bore such evident marks of having been opened in historic times, that I strongly suspected this of being modern.

In the jaws of all the people whose skulls I examined, I found traces of all the diseases known to modern dentistry. There was caries of the most formidable character, black, white and brown. There were the marks of abscesses which devastated great regions of tissue. There was necrosis which had caused the loss of great sloughs of bone, though I must admit that necrosis was more rare than most other oral diseases. There were great masses of tartar

enveloping all the teeth in the jaw. There were indications of all kinds of inflammation of soft tissues. There were exostoses and hypertrophies, absorptions and malformations, denudations and abrasions, exfoliations and irregularities. I thought to myself as I held in my hands the evidences of all this disease and suffering, what could these poor creatures do, tormented as they were without hope?—for there were no dentists in those days. Decayed teeth must remain until they could be removed with the fingers, for the primitive people knew not the blessedness, the comforting tenderness of modern forceps. I tried to picture to myself the victim of this terrible decay, that had in some instances destroyed every tooth in the head. I tried to imagine him brooding in silence and gloom over his misery; suffering in patience the exquisite torture with which to his untutored mind the Great Spirit had in infinite mercy and loving-kindness, or in dark wrath and sullen judgment, visited his weak creations, or in unexpected paroxysms of anguish raising a whoop that shook the forest and caused his dependent family to quake with fear, and I said, “Poor fellow! your lot *was* a hard one. Why the mischief didn’t you have it filled—with amalgam if you could not afford gold?” And then I recollected that he was deprived of that inestimable last gift of a good Providence, the modern dentist, and could only suffer and groan and howl and kick the furniture about, and try old-women quack-nostrums until he felt better.

There were fewer irregularities among the teeth of these people than are known at the present day. Their jaws, especially those of the mound-builders, were broad and well developed, giving indications of a muscular race. Nevertheless, bad cases of irregularity were not unknown. The teeth of the Southwestern Indians were the most worn by use, and it was not unusual to find whole dentitions worn completely down to the gums. The Sandwich Islanders had the handsomest dentitions that I ever saw. Their teeth were almost uniformly as white as ivory, and as regular and even as the teeth of a horse. But they were, as a people, sadly afflicted with caries.

There were a number of points which I desired especially to note, and the results of these were usually disappointing to me.

The number of wormian bones did not greatly exceed those found in skulls of to-day, though some of them were unusually large. In one skull, from the mound-builders, the parietal bones were divided by a suture extending clear across them, just above the summit of the squamous portion.

There were but three cases of persistent frontal sutures in adults, all from the Tennessee mound-builders, the others differing not at all in their apparent development from the skulls of moderns.

The number of the teeth has not changed. There was about the usual number of instances of apparently rudimentary wisdom teeth, and supernumerary teeth were not lacking. There were cases of entire lack of certain teeth, the non-appearance of wisdom teeth in adult and even senile jaws being most common. I also found a number of cases of non-eruption of cuspid teeth. In some cases the wisdom teeth had been erupted while the canines were absent. I found such abnormalities as the appearance of a cuspid between the two bicuspid, and malposition of incisors. Usually, however, all the bicuspid and molars occluded perfectly. I found impacted teeth and teeth lying transversely or longitudinally in the jaw. I found some cases of narrow jaws, where there was not room for the eruption of wisdom teeth, which must have caused great annoyance and pain to the possessor.

Perhaps a typical semi-tropical race was that which inhabited ancient Peru. At just what period this people lived, we have no knowledge, but it was some time before the advent of the whites upon this continent. They were a well-built race of people, physically, and had made some advances in manufactures, being in this respect the superiors of the North-American races. That they were a patient, rather industrious, laborious people, the works which they have left behind them show. They had well developed jaws, the lower one especially being broad and strong. Their teeth were large and fine, generally of a yellowish color, but they were badly troubled by dental diseases. Manifestly they took no care of them, for they were frequently encrusted with tartar. The dentitions of the adults almost uniformly gave indications of wear, many of them being extensively abraded.

I had not opportunity or time to make careful statistics, but the following figures will give an approximate idea of the condition of the teeth of the early inhabitants of Ancon, Peru.

Of the skulls of adults of various ages, I made examinations, more or less careful, of two hundred, taking them as they came, and making no selection. I think they were a fair average of the whole. Of these, seventy-four had lost some of their teeth during life. Forty-three only, so far as I could discover, possessed a perfect dentition and gave evidence of healthy mouths. One hundred and two presented indications of oral diseases. The remainder were in such a state that it was impossible to determine their condition at death. Thirty-one showed extensive absorption of the alveolar process, due probably to various inflammatory conditions. In thirteen cases I found the marks of deep alveolar abscesses which had caused extensive wasting of the osseous tissue. How many others there were, not of sufficient severity to leave indelible traces upon the bone, it is impossible to say. In two mouths I found supernumerary teeth, and in two there were exostoses so great as to be visible. It will readily be understood that, as the remaining teeth were usually firm in their sockets, ordinary hypertrophies were undiscoverable without mutilation of the specimens. In fifteen cases there was no sign of the presence of wisdom teeth, nor of their loss. Seventy-two dentitions were extensively worn, some of them nearly even with what must have been the border of the gums. In five instances the wisdom teeth were in appearance but rudimentary. In eighteen cases the wisdom teeth occupied an abnormal position through lack of room for their development, and this, notwithstanding the usually massive character of the maxillæ. There were four cases of decided irregularity, not counting unimportant deviations from the normal. There were scarce any dentitions that were entirely free from tartar, and some of the mouths contained large masses of calcareous incrustations. There was at least one case of an almost complete calcification of the pulp. How many others, only an examination of the pulp chamber could determine.

Of the ancient mound-builders of Tennessee I examined the skulls of seventy-five. Of these, twenty-seven could be set down as prob-

ably free from dental diseases. Thirty-two had carious teeth. There were seven cases of extensive alveolar abscess. Twenty-two had lost teeth during life, and the consequent absorption had obliterated all trace of their existence. Twelve cases showed extensive absorption about existing teeth. There were two cases of visible exostoses, two apparently rudimentary wisdom teeth, and three irregular dentitions. Only seventeen showed depositions of tartar, and but thirteen gave evidences of much wear.

It will be seen that the teeth of the mound-builders were much more free from calcareous incrustations, and less worn than those of the inhabitants of Peru. This was doubtless owing to their living more largely upon an animal diet. There were less cases of irregularity because they were a larger and more muscular race, with broader, stronger jaws, but the proportion of diseased dentitions did not vary greatly.

The teeth of the Sandwich Islanders were much more beautiful, and instances of irregularity were very rare. But the same prevalence of caries and other dental diseases was observable, though in probably not as great proportion. I was unable in the limited time at my disposal to attempt to gather any statistics of the skulls of this people, or of those of the few Mexicans, California Indians, and Patagonians in the collection. It must suffice here to say that all showed the presence of the same diseases which we are called upon to treat to-day, and the proportion, while undoubtedly varying among the different nationalities, was sufficiently large in all cases to have given ample employment to a fair sprinkling of dentists, had they existed.

What is the conclusion of this whole matter? It is that dental caries and oral diseases are not the results of modern civilization. That they are not wholly due to errors of diet, nor to the use of tobacco, or condiments, or to any peculiar manner of preparing food, nor do they have their origin in perverted neural currents and the general deterioration of mankind, since they have accompanied man, so far as we can trace, through all the gradations of his development.

The further consideration of the subject I leave for the future,

only insisting that while I do not in this paper of a necessarily hurried preparation make pretension to minute exactness, the general truth of the observations made and the approximate accuracy of the statistics given, I will stoutly maintain. Any one who considers the conditions under which such researches are made, and the care which must be exercised to prevent accidental mutilation of the treasured specimens, the consequent impossibility of making intimate inquiry into the internal condition of the teeth and jaws, and the necessary absence of microscopical investigation of the tissues, will understand that little more than general results can be expected from such an examination as that which I have here reported.

THE USE OF THE SCREW IN REGULATING TEETH.

BY WILLIAM H. TRUEMAN, PHILADELPHIA, PA.

A PAPER READ BEFORE THE PENNSYLVANIA STATE DENTAL SOCIETY, AT CRESSON, PA., JULY 31ST, 1883.

Although I had been quite familiar with the screw as used in regulating teeth for many years, and had made many appliances in which it played an important part, I was not impressed with its great value until I read a paper upon the subject written by Dr. J. N. Farrar (*Dental Cosmos* for Jan., 1878), the second of a series in which he endeavors to reduce the use of the screw in regulating teeth to a system, and to devise a series of appliances that would meet all cases. I think, perhaps, that attempt, and the numerous complicated and delicate devices suggested, has tended to obscure the advantages of the screw as set forth in the paper referred to.

The idea that impressed me so forcibly in Dr. Farrar's paper was the advantage of a *positive* and *intermittent* force in regulating. To me it was new, and until I read it there I have no recollection of ever having seen it mentioned, or ever having seen any appliance made with that end in view. Until then the screw was mostly used

to follow up the movement of the teeth, the real moving force being some form of spring, or the force of mastication. It is true there were on the market several forms of steel jack-screws designed for regulating. I have been unable to learn the views of those who invented them, but gather from the advertisements that they were designed simply as a convenient means of applying force, and I think we may safely say that Dr. Farrar deserves the credit of demonstrating that the idea so long held, that the force used in regulating teeth should be a constant and yielding one, of which the spring is a type, was wrong, and that the screw, exerting a positive unyielding and intermittent force, is by far the most effective and least painful.

I do not agree with Dr. Farrar when he limits the movement of the tooth to a small fraction of an inch every twelve hours. I find no rule can be rigidly laid down; it is simply a matter for judgment. A rate of progress that in one case would be excessive, in another would be unnecessarily tedious.

Neither do I agree with him in applying the screw in all cases. There are many that can be more satisfactorily regulated by other means.

My object in bringing this subject before you is to show the advantage of the screw in cases where other means would probably prove cumbersome and inefficient, and to show you that the apparatus may be simple, easily made, easily altered, inexpensive and effective, working rapidly, and with a minimum of pain and inconvenience to the patient.

First, the advantage of the screw. It is a positive motion; if it is moved one quarter of a turn the tooth *must* move a corresponding distance, for it is not dependent upon any action on the part of the patient. It is an unyielding motion; the tooth is moved and held firmly in its new position, and is not disturbed again for hours. That is the secret of its painlessness. It is not like a spring, that, when it has moved the tooth allows some other force to move it back, and thus by a to and fro motion sets up severe irritation. It holds the tooth so firmly that in the most severe cases of interlocking there is no need of capping any of the teeth to keep the jaws

apart. It works so rapidly that no injury need be feared from loss of antagonism while the tooth to be moved is taking its new position.

I use the new style steel screw-jack, suggested by Dr. A. McCollum, and kept in stock at the dental depots. It consists of a middle bar which comes in several lengths, with a right and left hand screw and nut at either end. The nuts are intended to rest against the teeth, and are furnished with holes so they can be tied in place, though I do not think that plan a good one. I have found that wherever the steel touches the tooth, whether the contact be a forcible one or not, the enamel is *always* roughened. To avoid that, I always coat with soft solder or tin any part of the steel that may possibly come in contact with the teeth. I desire to lay particular stress on this, as I have seen teeth seriously injured by neglecting it.

The chief difficulty found in using this screw-jack is to hold it firmly in position. It must not only be firm enough to hold its place while at work, but also must be so fixed that the force used to turn it shall not displace it. The force required to turn the screw is far greater than might be expected. No matter how easily the screw may work at first, after it has been in place a short time and becomes oxydized, as it always does, it works stiff, and in some cases the force required to move the tooth is quite formidable, so that both combined make it necessary that the apparatus be held in place firmly. This is important, for if the apparatus is displaced, if it comes off and is immediately replaced, we may expect to lose a day's work. With the screw working so rapidly, repair does not follow the tooth so closely as with slower methods, and as soon as the pressure is released it immediately springs back. I find, as a rule, on replacing the apparatus we can only get the tooth into the position it was before it came off. For the same reason, after the work is done the tooth must be held in its new position more firmly and for a longer time than with other methods. In practice it is best to move the tooth a little beyond the desired position, and to allow the screw to remain in position for a week or more undisturbed, before replacing it with a retaining apparatus.

As each case requires its own special appliances, I can only give an outline of the manner in which the screw is fixed in position.

We first fit a band around the tooth to be moved, generally making it of platina-gold, as with it we obtain the greatest strength with the least bulk. If for one of the front teeth, we make it narrow, fitting it well down on the neck of the tooth, making it spring on tight, so that it cannot possibly slip over the crown. In putting it on, it is not, however, slipped over the crown, but pushed through the little space always found at the necks of the teeth, from the inside of the mouth. It is well to let the ends come well through, and to make them pointed, so that when in place they may be tightened with the pliers, as were the old fashioned narrow bands on plates.

It may require a little tact to adjust it, but the most crowded mouths always have sufficient space for the band at this place. We now select the tooth or teeth to support the fixed end of the screw, and fit to them bands as wide as they will admit of, so shaping them that they will have a tendency to work up into the gum, and after they are fitted, solder on little catches so as to hold them from going too far. We thus obtain a band that will remain firmly in position. It is best to have the band pass around the front of the tooth, and if the teeth are crowded so that it must be made thin, there is a possibility of its being pulled through, which must be guarded against. Where the bicuspidis are selected it is best to use two of them; sometimes even three teeth are needed to resist the force used against the tooth to be moved. It is very needful that this end of the screw should be well supported. In some cases it may be necessary for the admission of the bands to press the teeth apart with rubber, but as a rule, if made of thin platina-gold and the edge beveled, they can with a little patience be pushed up into place without separation.

The bands fitted, we solder to each, with silver solder, a tongue of heavy silver plate to support the screw, and while soldering it to the front band extend a tongue to rest upon the palatine surface of the tooth, so that the band shall not press into the gum too hard. These tongues should not conform to the roof of the mouth, but be made straight, otherwise when the tooth moves they will be pressed into the gum.

We are now ready to attach the screw. First enlarge the holes in the bar to at least double their size, so as to admit an instrument strong enough to turn it when in the mouth. Now file the nickel-plating from both nuts, and so shape them that they will fit on the silver tongues snugly and present no sharp edges to the tongue, and then thoroughly coat them with tin, and also tin the lingual surfaces of the silver tongues. Now place the bands in position on the cast, lay the screw with the nuts in position, screwed up nearly as far as they will go, and holding them in place if needful with a little plaster, thoroughly unite the silver tongues and nuts with soft solder; use it freely and be sure it takes hold well to avoid after trouble. The fixture is now complete. Before putting it in place oil the nuts and screw well; the surplus may be wiped off, but be sure there is plenty between the nut and the screw, or after a few days it will be impossible to turn them. It is often difficult to fix it secure enough to resist the force needed to turn the screw, and it is generally best to support it with the fingers, and to examine closely to see that it is not displaced before dismissing the patient. In screwing up turn gently and slowly and stop for a few moments if it goes hard; each time screw up as far as the patient can bear, and then from $\frac{1}{8}$ to $\frac{1}{4}$ of a turn more. The pain will cease in a few moments. It is best to go too slow rather than too fast, but that and many other little things are matters for the operator's judgment.

We generally arrange the fixture complete upon the cast, but sometimes it is best to fit the bands to the teeth in the mouth. After they are complete and ready to attach the screw, place them in the mouth and build up plaster in the space between them. We thus obtain a sure guide to get them in the exact position they should occupy.

If it is desired to pull a tooth in, we simply make the bands into loops. If the screw proves too short, change the position of the nuts, or use a longer bar.

It is said that there is danger that an appliance like this will irritate the periosteum, or make mischief by pressing down into the gum, and that there is great danger in moving a tooth so

quickly. I admit that all this is true, but presume that those who attempt it are men of intelligence and judgment, and it requires but little of either to avoid any evil result. The inconvenience to the patient is far less than from any form of plate I know of. It is necessary to see the patient at least once a day, for I do not trust them to tighten the screw. I consider it less expense and labor to construct this appliance than to make a vulcanite plate. I have not attempted to explain how every case should be treated, but have simply given a general outline, believing that your own ingenuity will supply all that is omitted.

THE CURSE OF MODERN CIVILIZATION.

BY DR. GEORGE C. BROWN, ELIZABETH, NEW JERSEY.

I have a little matter to call your attention to, which I think is one of the most vitally important questions of the day, not only for the D. D. S. and the M. D. to consider, but for every intelligent, thinking human being, and because it is not so considered is the reason I have called it the Curse of Modern Civilization—white flour. My object in writing this paper is to call your attention to the minute anatomy of a grain of wheat, and by this examination to gain, if possible, a little light on the subject of phosphate food. If I can in this way get you to thinking on the subject, and then we all by a combined effort be enabled to start the reform ball rolling, I shall think that we are on the true road to perfection, the preventive rather than the curative, and who knows but that it may be the destiny of the dentist by his researches and conferences to finally point out to suffering humanity the true elixir of life—health without physic.

Let us look at the construction of a grain of wheat.

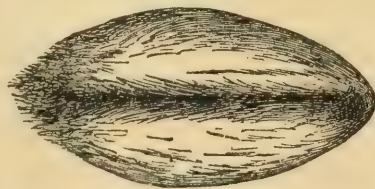


Fig. 1 represents a grain of wheat in its natural state, with the

husk and fibrous beard on. This husk is the only indigestible and innutritious part of the grain, being composed of silex and woody fibre; if this be carefully removed you will find the grain as represented in fig. 2.

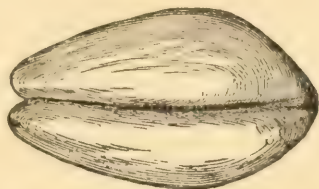
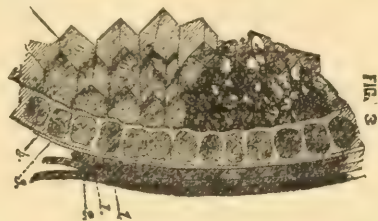
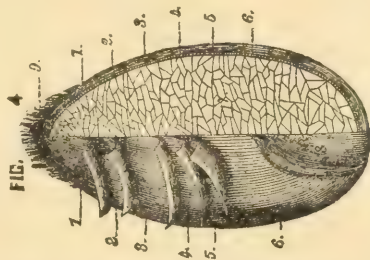


Fig. 3 represents a section of the grain highly magnified,



1, 1, 2, 3, 4, constitute what is commonly known as bran; 1, 1, 2, being the husk, and 3, 4, 5, 6, containing the food elements, which can be more easily seen in fig. 4.



Nos. 1, 2, 3, 9, constitute the outer husk and fibrous beard.

Nos. 4, 5, 6, 8, constitute that portion of the wheat wherein reside nearly all the mineral elements.

No. 7 represents the starch cells and constitutes about seven-tenths of the entire berry.

The starch has no properties capable of building up the system and repairing its vital waste; its only action is as fuel, and with fat it supplies the heat which is necessary to keep up the steam. To carry out the illustration, Nos. 4, 5, 6, 8, supply the water for the steam engine, from which the steam (vital force) is formed, and you are all aware of the effects of a hot fire under a boiler with no water in it. This is just the condition when only fine flour is used. The

entire outside of the berry down to the starch is removed, and they send us hell fire in the beautiful disguise of white flour.

An analysis of wheat and white flour gives the following result from 1000 parts of substance :

Wheat has an ash of.....17.7 parts.

White Flour has an ash of 4.1 parts—an impoverishment of about $\frac{3}{4}$.

Wheat has..... 8.2 parts phosphoric acid.

White Flour has..... 2.1 parts phosphoric acid—an impoverishment of about $\frac{3}{4}$.

Wheat has 0.6 parts lime and 0.6 parts soda.

White Flour has..... 0.1 parts lime and 0.1 parts soda—an impoverishment of 5-6 in lime and soda each.

Wheat has.... 1.5 parts sulphur—White Flour has no sulphur.

Wheat has..... 0.5 parts sulphuric acid—White Flour has no sulphuric acid.

A Boston physician, in a paper read before the New Hampshire Medical Society, made the following statement :

“I became alarmed at the decay of my children’s teeth—I queried dentists and others as to the cause, and settled down to the conclusion that there was something wrong in the bony elements of their food. Subsequently Dr. Nichols, editor of the Boston Journal of Chemistry, brought to my notice some comparative chemical analyses of wheat and flour, showing the great deficiency in the latter in mineral ash. I was then using in my family a celebrated brand of flour called ‘Peerless.’ I took this flour to the State Assayer, Prof. Sharples of Boston, and had him analyze it. He reported withdrawal of seventy-five per cent of the mineral ash in wheat.” And he further says, “I still think that, had I not had this analysis made and paid for it, I should not have been so thoroughly convinced as I now am, of the terrible impoverishment in flour.”

Majendie in his experiments on this subject found that dogs fed on white flour died in about forty days, of starvation, while dogs fed on flour made from the entire wheat thrived and grew strong.

The question now is what shall we do for a substitute, as I think I have proven to you that white flour is not a proper food for human beings, and as I do not think it necessary to call your attention to what you all see every day in your offices—that is the lack of the phosphates and nitrates in our patients, especially the children,—I take it for granted that you all feel the want.

Let us look for a substitute.

Oat meal has been a great help to us, but you will all agree that it does not come anywhere near what is required.

Graham flour has been used and considered a good article, but if we look at the way it is made we will have to discard this too.

There are two improper ways of preparing brown flour; the first is by grinding the wheat whole, so that the indigestible and irritating husk (which is not only unhealthy in itself but contains the eggs and larvæ of insects) forms part of the flour, and is certainly injurious; the other way is by mixing poor white flour with bran, and the result is the same.

Meat and vegetables contain the same elements to a certain extent, but there is no other food that combines them like wheat, in nearly the exact proportion in which they are contained in the human system, so that it is evident that wheat was intended for the principal food of man and the only way to get its whole virtue is to remove the outer husk and grind all the rest; this will produce a dark flour, varying in color with the soil in which is grown the wheat from which it was made.

DENTAL PERIOSTITIS—THE GRINDSTONE CURE.

BY JOS. REQUA, ROCHESTER, N. Y.

READ BEFORE THE 7TH AND 8TH DISTRICT DENTAL SOCIETIES, OCTOBER, 1882.

A peculiar phase of periostitis, with accompanying discomfort and toothache, has so forced itself upon my attention the past year and has been so interesting to me, that I wish to call your attention to the subject, and will do so by giving the history of a few cases.

The teeth and their surroundings to be maintained in health need exercise, such as they get or ought to get in the mastication of food. In order to get this exercise they must have antagonists. Usually when a tooth has lost its antagonist we see it slowly and surely losing its firmness and becoming elongated, or leaving its socket.

On the other hand it must not be subjected to immoderate usage and pressure, such as a molar or bicuspid would get if we were to fill the crown with gold or other hard substance and leave it too full, or such as it would get if an individual tooth were harder than the other and thus less subject to wear by attrition.

Now there is nothing new in all this, and yet I fear there are some among us who do not give sufficient attention to—if I may be allowed the expression—the harmonious antagonism of the teeth, especially in cases of obscure pain.

A year ago a lady of middle age, with full compliment of teeth containing several fillings, all of which were gold, complained of uncomfortable feeling in the region of the upper left molars. I examined them but failed to find the cause. A week later she came in with "there must be a cavity in one of these teeth, as hot and cold liquids give me severe pain." I spent half an hour in a further examination. The verdict was—no cause for action. A week later and a draught of air through the mouth gave pain. Then for the first time I found sensitiveness to percussion in one of the bicuspid. I suspected a dead pulp, as it contained a good filling of fifteen years standing. A few days more showed marked periostitis. From a bite upon sheet wax I found the tooth receiving hard knocks from a hard, unworn cusp of its antagonist. I ground away the hard-headed antagonist with instant and permanent relief, and there has been no discomfort whatever since the hyper-sensitive tooth was relieved of more than its share of pressure.

Four years ago I removed the pulp from a lower molar for a man of about fifty years, and filled the roots with os-artificial and the crown with amalgam. Last January he came in saying: "That tooth will have to come out now." He had lost but two or three teeth, and the others showed extensive wear excepting this one. By a bite upon sheet wax I found it to be receiving more pressure than the others; it was a severe case of periostitis, and increasing daily. I ground the tooth so that it scarcely touched, and he remarked, "There, that is all right," and it has remained all right to the present time.

In February last a young man applied for relief. He had lain

awake nights, and suffered daily after eating, for more than a week. I could not locate the pain, as it was neuralgic in character, but after several days had passed, during which I made four or five examinations, a lower second molar began to grow sensitive to percussion. It had been filled seven or eight years with amalgam, and now showed a cleaner cut through sheet wax than its neighbors. I applied the grindstone cure, and there has been no discomfort since.

In February a man of forty-five who had been unable to attend to business for a week because of a sore tooth, came to have it out. A lower second bicuspid was jumping up and down in its socket, and I at first thought there was alveolar abscess. A further examination led me to think there was not, and that the pulp was alive. I applied the grindstone cure, with immediate relief and a rapid return to health. He was employed in the city treasurer's office, and it was a plain case of unequal taxation, and the overtaxed member grumbled, as it had an inalienable right to do.

Between two and three weeks ago, a man of fifty who lives in Chicago, but who was spending a few days in our city, called and wished me to examine an upper second molar. It had troubled him a good deal for three or four years. He had thirty-one teeth, all nearly sound, three or four small fillings in them, and an amalgam filling on the posterior side of the troublesome one. The wisdom tooth back of it had been extracted about four years before. He said it was not sensitive to heat or cold, but most painful after eating. His dentist said he could do nothing except to extract it. I found the filling perfect, the tooth otherwise sound, and the gum apparently healthy. I ground it and its antagonist, and requested him to report the result. I have not seen him since, but a week afterward received a postal card saying his tooth was all right, and that he had had no pain since the application of our specific.

Three months ago a lady began troubling me with complaints of toothache, for which I could find no cause. The trouble gradually increased until about a month ago, when she came in, saying she had suffered so much that she could bear it no longer, and that cold water gave excruciating pain. With a syringe and cold water I soon found the offender to be an upper second molar, in which

an approximal filling of phosphate of zinc had been inserted a year or two before. The filling was in good condition. I ground the tooth so that it did not cut through sheet wax. I did not see her again until yesterday, when she came in smiling all over, saying she thought it wonderful how such a simple thing had cured her of the "awfulest toothache" she had ever had.

These are only a few of the many cases, but sufficient to show the point I wish to make. We do know that teeth often differ individually in the same mouth in structure and density, with corresponding differences in their ability to withstand wear. As a general rule, however, they accommodate themselves to circumstances, and keep up the balance of antagonism unassisted; yet I have been astonished at the number of cases I have found since I have been looking for them, where a little assistance was needed, and which when rendered, met the requirements of the case perfectly.

THE BRITISH DENTAL ASSOCIATION.

We have received from Dr. Bogue the following interesting sketch of the late meeting of this Society, held at Plymouth. Accompanying the letter were newspaper reports of the proceedings and festivities, from which we shall make extracts as we find room for them.—EDITOR.

ON THE TRAIN,
NEAR PLYMOUTH, ENGLAND, }
August 27th, 1883. }

When I was asked a few weeks ago to send a letter to the *INDEPENDENT PRACTITIONER*, describing any matters of interest I might run across, I little anticipated attending the meeting of the British Dental Association, but as I have done so and been both edified and delighted thereat, I send you an account, from which you can extract such items as may seem to you interesting.

Our professional brethren on this side have been more than polite, and have fairly overwhelmed me with kindnesses. I have never before been compelled to stand as a representative of my

American brethren, and it was certainly very gratifying to receive the kindly sentiments that are expressed for us.

I was delighted to meet many of our old friends, former visitors, and some of them graduates of our colleges, Dr. Waite of Liverpool, the valedictorian of his class when he graduated at the Philadelphia Dental College, being the first; we may well be proud of the compliment paid to our colleges when gentlemen like Dr. Waite are numbered among our graduates. Mr. Turner, who some years ago visited the Harvard Dental School in company with Mr. Tomes, and afterward visited several of our colleges, was also present as Honorary Secretary, in which capacity he has done an amount of work for his profession which is only surpassed by the work that he did in the interest of dental reform, work that will be appreciated by the next and the succeeding generation of dentists more than by the present one, although the present one seems to hold him in pretty high esteem, if we are to judge from the applause that arises when his name is mentioned in public.

Mr. Hutchinson, who a dozen years ago made his mark as a fine operator at the Dental Hospital in London, and who will be remembered as a visitor to New York about five years ago, read a valuable paper, deprecating the premature extraction of the temporary cuspids.

Dr. Campbell, of New Mode plates fame, was also present, and so was Dr. Bing of Paris, with some specimens of his own peculiar bridge work, beautifully carved in ivory.

Whatever may be thought of this plan of replacing lost teeth, no one can question Dr. Bing's ability, and I believe he can point to many successful operations that have been done by his own hand.

Mr. Fernald is, I believe, the only other American that was present, but he is in partnership with Capt. Rogers, a gentleman practicing our specialty at Cheltenham, so we may look upon him as half an Englishman. Among the most promising of the younger men, in a scientific way, is Mr. Storer Bennett, who for two or three years has been doing good and original work with the microscope. You may expect to hear further from him if he lives, and

he will do honor to his chosen profession. Mr. Oakley Coles, whose book on deformities of the mouth will be remembered, was present.

Last and most marked of all, I will mention the President of the Association, Mr. C. Spence Bate, F. R. S., whose untiring energy seemed to pervade everything he touched, from a dinner at his own house, through all the meetings and excursions of the Society and its entertainment by the generous hosts that were provided, to the Athenaeum itself, where the meetings were held, and whose prosperity as a scientific and art museum I am told is largely due to Mr. Bate's persistent and energetic and self-denying work in its behalf. I think we may congratulate ourselves, and be very proud of such a member of our profession as Mr. Bate, for the influence that he exerts for the elevation of his calling is incalculable. But I must no longer weary you with gossip, and I refer you to the enclosed accounts of the meeting for more substantial matter.

Before I leave the subject altogether, let me inform your readers that the British Association, which corresponds to our American Scientific Association, and embraces a great many of the members of the Royal Society, is to meet next year in Montreal. As several of our own profession are also members of the Association, would it not be well to extend a formal invitation to such as are to attend the meeting of the American Dental Association as our guests? Nay, more; could we not arrange to time our meeting so as to receive these distinguished foreign visitors and make them our guests at a good meeting of the Association? They will probably come over about the first of August, and if we could invite all the English dentists who are also members of the British Association, and do so pretty soon, it might be the makeweight that would induce hesitating ones to decide in our favor, and to pay us a visit.

Yours faithfully,

E. A. BOGUE.

Original Translations and Abstracts.

MINUTE ANATOMY OF THE HUMAN TOOTH.

AN ADDRESS BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK,
BY FRANK ABBOTT, M. D., NEW YORK.

Mr. President and Gentlemen :

I suppose you will all recognize the fact that in order to treat the teeth or any other portion of the human frame rationally, you should first understand the absolute structure of the part itself. In fact it is thought by many that no one has any right to operate upon teeth, or treat any other part of the body, unless they understand the structure of the part upon which they are operating. I need not tell you that it is necessary to understand the structure of the teeth perfectly in order to be able to treat them in a manner to save them. I need not say to you that it is necessary to save teeth in order that patients may enjoy good health. You know it is impossible for a person's digestion to be in perfect order unless the primary digestive apparatus is in good healthy working condition. If the teeth are out of order the whole digestive track must necessarily be more or less affected. It cannot be otherwise. That being the case it stands us in hand to be careful in the study of this organ, that we may know just how, where and when to work. We see before us a diagram of an upper central incisor tooth, cut as nearly through the center as I could conveniently cut it, magnified a little over 10,000 diameters. This diagram I propose to explain to you as clearly as my knowledge of the subject will permit. First we have the crown, that portion which projects out of the gum; the neck, to which the gum is attached, and the root of the tooth, which stands in the socket formed by the alveolar process. The main portion of the tooth is composed, as you all know, of the dentine, or what was formerly called the ivory of the tooth. The crown is covered by the enamel, which is very much harder than the dentine, and put there for the purpose of withstanding the attrition of biting and mastication. This is covered, as you will observe, by a little epithelial layer. This membrane was discovered by Alexan-

der Nasmyth in 1839, and is known as "Nasmyth's membrane." The root of the tooth is covered by a portion that is called the cementum, or *crusta-petrosa*. This more particularly resembles bone and contains more organic substance than dentine for its more perfect attachment to the periosteum, which covers the outside, or rather lines the socket in the alveolus, and is reflected upon the root of the tooth. The tooth was, up to 1678, I think, supposed to be a crystalline mass without any organic structure whatever. It was supposed to be a separate organ from the rest of the body, and simply stood in the socket without any other than mechanical attachment. The same, for instance, that holds a nail when it is driven into a piece of wood, and expressed by the word gomphosis—a word still used by some anatomists in this connection.

In 1678, a German, I think he was, by the name of Leeuwenhoek, discovered what he called "straight and transparent pipes" in the dentine in the teeth. He was the first who promulgated this doctrine. This man's name, therefore, we all should respect as that of the man who made the first recorded discovery of importance in the structure of these important organs. From that time up to 1839, this was the theory and understanding of the structure of the human tooth. The enamel was still supposed to be a crystalline mass upon the surface of the crown, without any organic structure whatever. The "straight and transparent pipes" of the dentine were supposed to be filled with a jelly-like substance. That is all that was known of the anatomy of teeth until the year 1839, when Alexander Nasmyth, an Englishman, published the results of his researches in this direction. In his published work he gives drawings, and describes a reticular structure of both the dentine and enamel; also what he calls a baccated appearance of the "pipes" of Leeuwenhoek, called by him, I believe, "tubules" or tubes. Mr. Nasmyth was as much at a loss, however, as to the nature of the contents of these tubuli as Leeuwenhoek, or any previous observer had been. In 1844, Dr. P. B. Goddard, of Philadelphia, wrote a work upon the "Anatomy, Physiology and Pathology of the Human Teeth," in which work he quotes nearly everybody who had written upon the subject before him. He states that the

reticular structure and the contents of the tubuli are a gelatinous mass, which is moistened by fluid which comes out of the pulp and works its way off into the dentine. He says nothing about the enamel particularly. Up to that time that is what was known. What may seem a little singular to us is the fact that every observer up to within the last five years, ignored, comparatively speaking, everything that Nasmyth did, no credit having been given him by any observer, as far as I have seen. Had his discoveries impressed the dental student of his time as they do the searcher after truth of our "day and generation," we would have known the structure of the teeth to-day very much better than we do. In 1878, a gentleman in New York, Dr. Bodecker, undertook the study of the minute anatomy of the human tooth. His writings upon the subject, which are quite voluminous, may be found in the *Dental Cosmos* in several articles in that and the following year. He gives us drawings as well, from two hundred and fifty to two thousand diameters, one-fifth the size of the diagram which I have the pleasure of showing you here. He shows the reticular structure, which, he asserts, is traversed in every direction by living matter, and in this opinion I heartily concur. This living matter is believed to traverse not only the canaliculi proper, but the net-work which joins the canaliculi together. This frame or net-work is composed of minute tubes formed by the glue-giving basis-substance. In these tubes is a fluid, in the center of which runs the living matter, the fluid serving both as a protector and an insulator. Against the outside of the sheath or tube the lime-salts are deposited, forming the substance of the tooth. The red lines you see running through the dentine, enamel and cement, represent the living matter. The finer white lines which are seen running between the canaliculi and joining them together, known as the reticulum, are believed to contain very minute fibers of the same living matter. As I before stated, the reticular structure of the dentine and enamel were discovered by Alexander Nasmyth, in 1839, but it remained for Dr. C. F. W. Bodecker to make the discovery that the reticulum contained living matter, and that the tooth was as perfectly organized as any other organ of the body. This discovery has rationally

explained the peculiar and most acute pain produced by cutting a living tooth. Formerly it was thought that the pain consequent upon cutting with a fine instrument was produced by a vibration of the fluid substance contained in the canaliculi, the vibration being conducted along the canaliculi from the point of contact with the instrument to the pulp. As the canaliculi approach within a short distance of the enamel you will observe that they branch off or divide into two, and sometimes three, smaller canaliculi, in order to accommodate themselves to the finer structure of that substance. At this point, between the enamel and dentine, and all the way down between the cementum and dentine, we have what is called by Bodecker the "interzonal space," instead of the interglobular space, as it was formerly called. The living matter forms a very minute net-work at this space, in many instances so fine that it is impossible distinctly to see it. From this space it runs off into the enamel, to which it is distributed. Passing on through the enamel we see it entering and being distributed to Nasmyth's membrane. You will see in following around this interzonal space, little protoplasmic bodies, extending some distance from it into the enamel. These bodies are apparently irregular in form. They are granular in appearance, the granules being joined together by fibers. These are very small structures of themselves, it is true, but they all represent life. They are the living portion of the tooth.

Going back a few years we find in the *Dental Surgery* published by Tomes in 1873, I think it was, a description of what has since been known as "Tomes' fibers," which consist of short fibers drawn out of the canaliculi of the dentine. The process by which the discovery was made, and the fact established that very delicate fibers existed in the canaliculi, was somewhat as follows: A freshly extracted tooth was taken, its pulp chamber opened to its fullest extent, so that a good hold could be obtained of the pulp. It was then grasped with a pair of small forceps and gradually drawn out of the canals. Upon examination of the surface of the pulp thus pulled out, small fibers were seen extending out from the surface in great numbers, too small, of course, to be seen with the naked

eye. I believe the power used was about five hundred. Tomes was, and I believe still is, of the opinion that these fibers were branches of the nerve in the pulp. The cementum of the tooth, as you will observe, covers the root and laps on to the edge of the enamel, the latter passing down on either side underneath the edge of the cementum joined to it. That is the point known as the neck of the tooth, where the gum is, or should be, attached. It is about a sixteenth of an inch long normally, in the mouth. The cement, as I said before, is a substance resembling ordinary compact bone; we find bone corpuscles distributed through its structure, with the numerous off-shoots usually present. Chemically it is almost the same as ordinary compact bone. Not like the alveolar process, which is known as cancellous bone, of which we have a sample in the diagram upon the outside of the root. Following this along we come down to the end of the root of the tooth, the point where the pulp enters. This pulp, as you will observe, consists principally of the blood-vessels and nerves where it enters the root. The nearer we approach to the crown, however, the larger it grows, the excess being made up of myxomatous connective tissue. The bright red lines shown here represent the arteries, the darker red lines the veins, and the white the nerves. You will notice that the nerves beyond a certain point become red, or what is known as non-medulated nerve fibers. It is in this condition that they pass on through and between the odontoblasts (which are seen surrounding the entire pulp) into the dentine. Odontoblasts (tooth-formers) are a row of beautifully organized bodies located on the outside of the pulp, next to the dentine. They have a reticular structure, in the meshes of which water is held until it is displaced by lime-salts. While one row of odontoblasts is being converted into dentine by the deposition of lime-salts, another row is being organized and will take their place in regular order. Thus it is that the pulp is constantly becoming smaller and the dentine thicker. You will observe that the odontoblasts have a perceptible nucleus. It is at that point that the lime-salts are first deposited, and it undoubtedly remains the nucleus after the odontoblast becomes a dentine cell. I have

no doubt that the delicate reticulum of the odontoblast still exists in the dentine cell, but so very delicate is it that the highest power of the microscope fails to bring it to view. I want you to remember that the first row of odontoblasts formed is immediately under the enamel, and as each row becomes dentine, another row is formed back, or inside of it, so that the growth of dentine is from without inward, while the growth of the enamel is from within outward. The crown of the tooth with its enamel is all formed before any work is done upon the root. The point where the finishing touches are put on is the extreme end of the root, as far as outward appearances are concerned.

The President has asked whether in cutting a tooth the small protoplasmic bodies seen upon the diagram, projecting from or forming a part of the interzonal space in the substance of the enamel, are to be seen with the naked eye. No, they are altogether too fine for that, but they are readily seen with a power of 500. When the President asked the question I was about to remark that nature is always active, so that work is constantly going on in a healthy tooth in a quiet and imperceptible way. But under the slightest irritation, either from friction, caries or any other source, the odontoblasts become stimulated and the process of dentine forming is renewed with vigor. This is the proper fulfillment of the old adage that "self-protection is the first law of nature." It is under such conditions that we have what is known as secondary dentine deposited. According to Bodecker the living matter that runs into the canaliculi is made up from the sheaths or outer portions of the odontoblasts, and apparently passes between them, instead of out of their ends, as described by Tomes. Outside of the tooth, as you see it stand in the socket, you will observe the periosteum, which is this portion colored purple in the diagram. This membrane is very vascular and exceedingly sensitive. I wish to call attention to the arrangement of its fibers. From their attachment to the root of the tooth, they run in an oblique direction toward the crown, to the point of attachment to the side of the socket. By this wise arrangement you will see that the tooth is always suspended in a sort of sling, so

that in biting, the fibers stretch, and as soon as the pressure is relieved they contract again, giving the tooth more or less of an up and down motion in the socket. But for this wise provision of nature, if our teeth were solidly held in the jaws, we would probably become toothless much younger than we now do, as we would break them to pieces in biting any hard substance.

The preceding address was illustrative of the "Diagram of an Incisor Tooth," presented before the Dental Society of the State of New York, which has since been published and may be procured of Prof. Abbott, or ordered of the dental depots. Its possession is necessary to the complete comprehension of the paper.—EDITOR.

COMPOSITION OF DIFFERENT AMALGAMS.

Arrington amalgam, silver 40 per cent, tin 60 per cent.

Diamond amalgam, silver 31.76, tin 66.74, gold 1.50.

Hood's amalgam, silver 34.64, tin 60.37, gold 2.70, iron 2.90.

Johnsohn & Lund's amalgam, silver 38.27, tin 59.58, platinum 1.34, gold 0.81.

Lawrence's amalgam, silver 47.87, tin 33.68, copper 14.91, gold 3.54.

Moffitt's amalgam, silver 35.17, tin 62.01, gold 2.82.

Townsend's amalgam, silver 40.21, tin 47.54, copper 10.65, gold 1.6.

Townsend's improved amalgam, silver 39.00, tin 55.65, gold 5.31.

Walker's amalgam, silver 34.89, tin 60.01, platinum 0.96, gold 4.14.—*Monatsschrift des Vereins deutscher Zahnkuenstler.*

KIDNEY TROUBLE THE CAUSE OF TOOTHACHE.

This kind of toothache often accompanies gravel in kidney or bladder, and is of the most acute agonizing form. None of the usual remedies can be employed, not even the extraction of the tooth will obliterate the pain, which generally disappears as suddenly as it came. Dr. Rodemacher recommends the use of cochineal against the kidney gravel, and as this disappears, the toothache leaves without any medicine.—*Ibid.*

GERMAN PRIZE FOR DENTISTS' EXHIBITS.

At the recent Industrial and Fishery Exhibition at Memel, Germany, the first prize for dental exhibits, a silver medal, was awarded to Dr. Ferrari, an American dentist of that city.—*Ibid.*

PRESERVATIVE FLUID.

The formula of a fluid for the preservation of animal tissue, which is said to equal the well-known Wickersheimer solution, is published by Dr. Wirodzeff of St. Petersburg. It is composed of thymol 5 parts, alcohol 45 parts, glycerine 2160 parts, water 1080 parts.—*Zahntechnische Reform.*

HARD TEMPERED DRILL.

A drill that will drill even average tempered steel can be made by heating the steel to a cherry-red and then cooling in quicksilver. Such drills are exceedingly useful in dental operations.—*Ibid.*

Reports of Society Meetings.

NEW JERSEY STATE DENTAL SOCIETY.

(Continued from page 489, Sept. No.)

AFTERNOON SESSION, JULY 19th.

Dr. Geo. C. Brown read a paper entitled the different preparations of gold for filling teeth.

This paper has not been received.—EDITOR.

Dr. Geran.—I like the tone of the paper. It is a sort of register, and carries us back to the time when dentistry was in its infancy ; it shows that we are a progressive profession, and I know of no other that has made the progress that this our beloved dental pro-

fession has made. Why is that so? It is because we have teachers that are leading us on higher and higher, and will continue to lead us upward.

Dr. Bodecker.—For my part I thank Dr. Brown very much for his interesting paper, but I think the remarks made in it with reference to soft foil are not altogether correct. Very many gentlemen profess to use soft foil, but when you examine the manner in which they introduce it into the cavity, you will find that they are making it cohesive. Almost every one will carry the gold through the flame of a spirit lamp before placing it in the cavity, and gold that has been treated in that manner cannot, strictly speaking, be called soft foil. In using soft foil as such it ought not to be touched by the annealing flame at all. Soft foil, when it is put against the walls of the cavity without annealing, makes a beautiful filling, but as to the outer surface I think cohesive foil is far more serviceable.

Dr. Atkinson.—Perhaps our differences in regard to gold may be due to a false denomination. Cohesive gold is the softest possible condition of gold. The non-cohesive gold is non-cohesive because of some foreign substance on its surface, or because of a harder film. With that exception, I too thank Dr. Brown for the beautiful excerpt of the history of the use of gold that he has brought before us to-day. As to the little fling about birds flying high and lighting low, that depends upon whether their wings are clipped. Heavy gold has not had its wings clipped. It has not been deprived of the power to make a filling in less time and more solidly than any other form of gold. If I want to do the very best work, I want at least No. 240 gold, and if the cavity is small and the walls very strong, I want 480. You will learn that the strength of the walls of your cavity and the resistance they will afford has a philosophical bearing on this question.

Dr. J. A. Robinson.—When I began practice, forty-seven years ago, it was with Bull's soft foil. At that time I was in Boston, and we knew nothing about the cohesive properties of gold, and having learned the old way, and having tried to keep up with the new way, I have formed the practice of placing soft foil to the walls

of my cavities and then finishing with cohesive. Although I have no absolute means of knowing whether the Abbey foil would cohere if passed through the flame of a lamp, as the cohesive foil does to-day, yet I hardly think it would cohere like crystal gold. But when we take into consideration the fact that gold raised to 400 degrees Fahrenheit throws out crystals that have been beaten down in the process of manufacture between the gold-beater's skins, until they have lost the *grabs* that naturally cover the surface and that make them cohere to other pieces when brought in contact, then we have made the first step in the process toward a solid filling. I think it makes very little difference whether you use No. 60 or 120, or No. 4 folded so many times as to make that thickness, because after the filling is condensed you have substantially the same thing. I do believe, from what I have seen in my days and years of observation, that the dentistry of the former time, of Harwood and Tucker, was, for hard service, nothing to compare with what we have to-day. That was partly because of the theory that prevailed at that time, and which was taught to me when I began practice, that we ought not to make experiments. They said : Do not try to do anything that you are not sure of accomplishing, because if you should happen to fail you will lose caste. Attempt only that which will give you credit. Take no chances. Dead men tell no tales. All teeth that you are not sure of saving pull out and cast them from you. That was the theory, and I was taught with the forceps to take hold of everything that was a little doubtful and pluck it out. They said : You cannot save all the teeth, and if you can save ten or fifteen of them by filling the small cavities, you have done the greatest good that you can possibly do. Now when we extract teeth,—well, we don't extract now at all ; we take the old roots that we used to pull out years ago and build them up with gold, or supply them with artificial crowns, and I have teeth on both the lower and upper jaw placed over roots that were tolerably sound, that I have worn artificial dentures over for more than twenty years. So instead of extracting teeth that are pretty bad as we used to do, and that could have been saved had we known enough, we leave them in, and

place serviceable artificial crowns on them ; and so we go on from glory to glory, until we shall stand before the golden gate and see the golden city, and say : Praises be to the Lord forever.

Dr. Watkins.—Dr. Robinson gave us a beautiful description of his work, and I think it would be well for him to tell how he does it. He secures some of that saving of old teeth with a material that is called Robinson's textile fibrous metallic filling, I believe.

Dr. Robinson.—I will not detain you long, because Dr. Atkinson told me the best plan was to be modest and follow his lead; and that is true.

Being satisfied that soft gold, with my own manipulation, would more thoroughly stop cavities in the cervical walls and in the buccal and lingual surfaces of teeth than anything else I could use, I used it. Then, when I found myself disappointed sometimes, and saw a hole burrowing under the filling, I said that something that would so stop this cavity and hermetically seal it up that it would not leak, was what I wanted and would try to find. I made a great many experiments to obtain a fibrous material that would recoil within itself, so that the filling would not retreat from the borders or margins. When a fibrous metal has got no recoil to it it stays where you place it. These fibers do not have any possible connection one with the other, only under pressure, but when placed in a cavity, either by hand pressure or the mallet, the wall is hermetically sealed at the bottom, and it bears the same relation, in my opinion, that the grouting does to the wet places in the substructure of the building, and is better than solid granite to hold the superstructure. Having filled the greater part of the cavity with this material, I then put the gold upon it, which coheres; not exactly coheres, but adheres. The interlocking and interlacing of the gold with the fibrous material makes the crystals of gold and the crystals of the fibrous material interlock until it is so united that you cannot separate the gold from the fibrous material, and that I call Robinson's fibrous and textile metallic filling. This combination of materials makes a better filling than can otherwise be made, whether you use fine foil or thick foil. When it is covered with the gold the latter bears the same relation to the filling that the steel facing

of the hammer bears to the iron hammer, and you have the same qualities that you would have had with gold alone, and the filling is made in a quarter or an eighth part of the time that would be required to do it in any other way, and you have a better result. This material is not a plastic material ; it is fibrous, and adhesive by being interlocked, and the gold is interlocked with it in the same way. This is somewhat new here, although it is not new in Chicago and Detroit, where it has been in use for three years. I find it harder to introduce things at the east than it is at the west. Perhaps the western men are more pliant ; they are not all adamant, and you can make an impression on a Chicago man quicker by one hundred per cent than you can on a Boston man. I found in the dental offices in Boston men who claim to be good operators of the old soft foil type, who had never had a rubber dam on a tooth and never put rubber in the mouth, and who say they would not have it. I also found men who claimed to be good operators who have never used a dental engine, but who continue to operate in the primitive way of fifty years ago. What we want is the new method of the old plan. Let them try the new, and then they will know of the doctrine whether it be true or false.

EVENING SESSION, JULY 19, 1883.

Dr. J. W. Scarborough read a paper entitled "*Lobelia Inflata* as a Therapeutic Remedy."

This paper is unavoidably crowded out of this Number. In it Dr. Scarborough related a case in which severe and continued spasms of some kind followed the administration of ether as an anæsthetic, and which were relieved by large and repeated doses of *Lobelia*.—[EDITOR.]

Dr. Luckey.—I would like to ask the doctor whether there is any point where he would stop giving the remedy, in case no nausea was produced. He states that he gave it five or six times in increasing doses, the last dose being two tablespoonfuls. Is there not some limit at which you would stop in case there was no nausea, this side of death ?

Dr. Scarborough.—I would stop when the conditions requiring some relief ceased. If there were no spasmodic symptoms I would stop, certainly. With regard to the patient whose case I described,

I am positive she would not have lived two minutes the last time if I had not administered the final dose.

I have seen this medicine relax lock-jaw. When it was poured through the teeth the jaws sprung open immediately. It has an electric power that is possessed by nothing else that I know of in the whole range of *materia medica*. I will say that I am opposed to dosing and drugging and drastic purges. I could give my reasons for opposing physic; I have good reasons. But this medicine I speak of is not a physic. If there is something in the stomach that nature wants to remove, it may produce that effect, but when the system is cleared out you cannot physic with it; it will not act as a cathartic. In some of the works I have read, *Lobelia* is said to be a poison, which I do not believe.

Dr. Hayhurst.—Suppose that the two tablespoonfuls had not produced the desired effect, and you had gone on further, would it have come to a point where it would have been injurious to the patient?

Dr. Scarborough.—I should not have increased the dose beyond that, for I had given about four emetic doses. I started with ten drops, which gave relief, then in a short time the spasms returned, and I had to increase the dose.

Dr. Robinson.—Does it produce nausea on the patient?

Dr. Scarborough.—It did finally; but this patient was so far gone that the medicine could hardly produce any effect of that kind.

Dr. Reading.—At what stage did the spasmodic action appear?

Dr. Scarborough.—It was the very first thing that manifested itself.

Dr. Reading.—How did you administer the anæsthetic,—through a funnel?

Dr. Scarborough.—I moistened a sponge and placed it in a funnel-shaped napkin, held in the hand.

Dr. Reading.—I have noticed that if you wet the sponge pretty thoroughly in warm water it will, in a great many cases, prevent that spasmodic action you speak of, and an ounce of prevention is worth a hundred pounds of cure.

Dr. Scarborough.—A case like this was is very seldom seen.

Dr. Reading.—I have very often seen that condition when ether was given without the aid of a warm water sponge.

Dr. G. Carleton Brown read a paper entitled *The Curse of Modern Civilization*. (See page 526.)

Dr. Atkinson.—I think this is a very commendable effort. It is a recapitulation of some well-known facts with regard to the constitution of the berry of the wheat, which is the basis of our wheat flour, and the statements made in a mass way are well enough, but the execration of the carbonaceous portion of the berry is, I think, uncalled for, for the reason that fuel is as necessary to the production of steam as water is, and it is hardly fair to say that starch is a detrimental agent, inasmuch as it must be fermented in the human body until it shall have been converted into glucose, which is a form of sugar; and it may be emulsified, and is supposed to contribute to the production of fat.

The problem is one that is too deep for us to take hold of seriously, unless we know more about it than we know in mass. Even the men who preside over the Health Boards and who have charge of the inspection of foods, are at loggerheads with regard to this question, as well as with regard to the subject of the paper we heard before it. Sometimes it is difficult for us to detect the real antecedent of the change that we speak of when nutrition is dealt with, for the reason that the condition of the body to be fed is one of the prime considerations in the administration of remedies. We need to be wide awake,—and the President spoke justly, for I was sleepy—to catch the true significance of the changes that are undergone in the digestory apparatus by these substances, which may be either foods, poisons or remedies. And here I want to warn you against the nomination of almost all the text-books, and to advise you to take in their stead this simple statement, that anything that is capable of acting upon the living human body has either to help or to arrest the nutrient changes that are going on, and may be, according to the demands and necessities of the body, either a food, a poison, or a remedy. And when we classify these substances as foods, poisons and remedies I would do it in this way: *Lobelia* is one, or the other, according to circumstances;

carbon is one, or the other, according to circumstances, and so on.

The outer husk of the berry of the wheat may be neither detrimental nor useless. You must have effete matter in sufficient quantity to make a bole, or mass of the rough pabulum, so that the vermicular motion of the intestines can pass it along, the absorbents taking up the fine pabulum, the excess and the effete matter being discharged at the terminal gut. It is the fine pabulum that feeds the tissues. We say pabulum. Some will say that means chyme, others will say it means chyle, and others that it means blood. It really means the product of the complete digestory process, after the food has gone through all the minutia of the churnings necessary to prepare it for appropriation.

Take certain quantities of oxygen and hydrogen, put them into a receiver and pass a current of electricity through them from the positive to the negative pole, and that does the courting and marrying both, and makes the hydrogen and oxygen cease to be gases and become a liquid which we call water. Then reverse the current, and they are gases again. These gases combine only in a definite proportion, which is two of hydrogen to one of oxygen; and when we shall have the combinations of the elements of food whittled down to as fine a point, we will then understand the processes by which this great mass of food material is emulsified, churned, mixed, carried through the chyloferous duct to the sub-clavian vein, and from there to the lungs, where it is calorified and converted into blood, to be distributed through the capillary system wherever it is needed. It is never pabulum until it has been oxygenated by passing through the lungs.

Dr. G. Carleton Brown.—I do not want to be understood as saying I would reject the starch, or carbon in the wheat. I think it would be just as bad, if we had only the phosphates without the carbon. If we have water without fuel we are in just as bad a fix as we are when we have fuel without water. But I do think that we need the phosphates above everything else at the present time, in view of the condition of our teeth; there at least the phosphates are greatly needed. Dr. Atkinson says if we have good, well organ-

ized teeth, we will have no need of dentists, and I say this is the road we will have to travel to get to that condition. If we burn the fuel without the water, if we eat the carbon of the wheat to the exclusion of the outside elements which contain the phosphates, we are bound to have a break down.

CLINIC EXHIBITS.

Dr. C. A. Timme, of Hoboken, N. J., demonstrated the use of Dr. R. Telschow's hydraulic press (designed to facilitate the stamping of metal plates) and a very small furnace for continuous gum work, which is heated by ordinary coal gas. The several steps to be taken in the use of the hydraulic press are as follows: An impression of plaster of Paris or impression material is coated with a thin film of oil or a solution of soap, a suitable rim of thick paper or thin sheet iron is put around the impression cup into which a compound of sulphur and plumbago and some other substances called Spence's metals is poured. (See August No. *Independent Practitioner*, page 415.) The melting of this metal must be done very slowly and under constant stirring. It melts at a temperature of about 280 F. when it is quite thick, but after stirring it for a minute after it has been removed from the fire, it becomes a comparatively thin liquid, and this is the proper time to pour it into the impression. The cast is then freed from the impression material and imbedded in the upper (bell) portion of the hydraulic press. If the alveolar ridge of the die is low and not overhanging, the metal plate can be pressed upon it without any other procedure; if however the alveolar ridge is high, or very much overhanging, one zinc die is necessary upon which the folds of the plate can be hammered out, as the Spence metal can bear any amount of pressure but not the slightest tap with the hammer. A plate pressed by this press fits better than one stamped up in the old manner, and consequently requires no air chamber.

Dr. E. Slegel, of Reading, Pa., demonstrated the method of setting his new pivot tooth.

Dr. Wm. W. Evans, of Washington, D. C., restored for Dr. E. P. Brown, of Flushing, L. I., the mesial and cutting edge of the left

upper central incisor, with gold which was introduced by the electro-magnetic mallet. Dr. E. P. Brown, after the operation, called attention to the neighboring tooth, the lateral, which contained a large filling of heavy gold foil made by Dr. Wm. H. Atkinson in the year 1868. The edges of the enamel had retained their normal color, and the filling appeared to be perfect in every respect.

Dr. Wm. W. Evans further exhibited a new apparatus for pressing or vulcanizing celluloid, zylonite, or rubber, and some beautifully made sets of artificial teeth mounted upon celluloid and zylonite.

Dr. Ryneer, of New York City, showed some samples of his new crown for molars and bicuspid.

Dr. Bonwill, of Philadelphia, exhibited his dental engine, new hand pieces, mechanical mallet, and all-porcelain tooth crowns. Such of them as are not entirely new have been, within the past year, so modified and improved that they present many new features, and they attracted the earnest attention of the dentists present.

Dr. Wm. H. Dibble, of Trenton, N. J., showed a lathe for grinding gum teeth, the new feature of this machine being a contrivance for holding the gum teeth in such a manner that a perfectly flat joint is invariably the result.

Mr. Geo. E. Hodge exhibited his well-known excellent hand piece for the dental engine.

The Wilmington Dental Manufacturing Co. had a well-selected stock of their teeth on exhibition.

The Redman Manufacturing Co., of Newark, N. J., showed a number of useful appliances, such as brackets, lathe heads, etc., all of which were exceedingly good for the low price.

Mr. R. S. Williams, of New York City, showed a great variety of his gold for filling teeth.

The S. S. White Dental Manufacturing Co. displayed their well-known dental materials and appliances, of which the new Cycloid chair deserves to be especially mentioned.

The Robinson Dental Manufacturing Co., of Jackson, Mich., exhibited their fibrous metallic filling.

Mr. L. D. Caulk, of Camden, Del., was also present to show his well-known varieties of filling materials.

Dr. A. N. Roussel, of Brooklyn, N. Y., showed his criterion gutta percha cylinders.

Dr. C. F. W. Bodecker, of New York City, regretted that he was unable to demonstrate microscopical specimens as announced, by means of the McIntosh Stereopticon, as the apparatus which was promised by Messrs. Tieman & Co., of New York, had not arrived.

REPORT OF THE MEETING OF THE PENNSYLVANIA STATE
DENTAL SOCIETY, HELD AT CRESSON, PA., JULY
31, AND AUGUST 1 AND 2, 1883.

BY W. H. TRUEMAN, D. D. S.

THE FIRST DAY, JULY 31ST. MORNING SESSION.

The meeting was called to order by the President, Dr. J. C. Green, of West Chester, at 11 o'clock.

The Rev. Mr. Russell, of Altoona, delivered an address of welcome, which was responded to by Dr. Gerhart, of Lewisburg. The rest of the morning session was devoted to routine business.

AFTERNOON SESSION.

The President delivered his address, taking as his theme the manner in which advances in science are made. He endeavored to show how much valuable time and earnest effort is constantly wasted by being improperly directed. Would be investigators neglect to ascertain how far the subject they are interested in has been studied, or attempt to unravel the deeper mysteries of a science before they have mastered its first principles, or attempt a little here and a little there without any method or fixed object in view. In each case the result is a waste of time and effort. We should consider not only what we already know, but also what we desire to know, so that each effort shall be directed to a definite object.

It has been well said, "He who sees most and comprehends what

he sees, makes the best use of his time." It is not sufficient to simply *acquire* knowledge, or by constant practice acquire skill, but what we need most is the power to make that knowledge and skill practical. A man may be ready with his knowledge, be ready to describe and explain the various diseases and their best mode of treatment, and yet not recognize symptoms when he sees them, and be entirely at a loss in selecting a remedy. He may be a good mechanic, and yet failing to exercise judgment, be a poor workman. We should study to see not only that which lies upon the surface, but also that which is hidden deep within, and constantly bear in mind that all knowledge to be useful must be practical.

The doctor closed his address with an earnest plea for scientific, persistent, methodic work, in unraveling the mystery surrounding the cause of dental caries, as a ground-work to a better understanding of its prevention and relief.

Dr. James Truman read a paper upon "Iodoform in Dentistry." He had noticed in the foreign journals frequent reference to the use of this substance in dentistry, especially in Germany. Seeing it highly recommended by men whom he personally knew to be competent and reliable, he was induced to give it a careful and guarded trial. It seemed to be but little known in this country, and believing that it possessed merit he had taken this opportunity of calling attention to it. So far the results had been very satisfactory, but he had not been using it long enough to feel able to estimate its real value.

Iodoform is an orange colored, fine crystalline powder, with a strong persistent saffron odor. To many the odor was quite unpleasant, so much so that it has been cited as an objection to its use, and is said in some cases to cause severe headache. He had used it carefully and had had very little complaint of it on that ground. It is desirable to keep it off the hands, the odor being more difficult to remove than that of creasote.

It has three properties that render it desirable to us as dentists. It is antiseptic; it allays pain; its power to give prompt and permanent relief is remarkable. It is a disinfectant, and seems to possess the power of uniting with the gases given off during decomposition,

and rendering them inert. It possesses these properties to a far greater degree than anything he was acquainted with. A knowledge of these properties will suggest the cases where it can be used to advantage. It seems to combine the action of chloroform and iodine, but is far more permanent in its effect than either. For convenience of application he mixed it with a ten per cent solution of carbolic acid, using about the one-twentieth of a grain of iodoform. It is very important to thoroughly seal it up, so that it cannot possibly mingle with the saliva; he thought it quite as important to do this in using iodoform as in using arsenic, for it must not be forgotten that this substance is a poison, minute doses sometimes producing headache, nausea, and other unpleasant symptoms.

In illustrating its practical use, he stated that in a case of severe toothache with an exposed or nearly exposed pulp, he would proceed much in the same way as though he intended to make an arsenical application, only using more care in excavating. Then he would take about the one-twentieth of a grain of iodoform, moisten it with creasote solution, and carry it to the previously well-dried cavity on a small pledget of cotton—just as he would the arsenic paste—and carefully seal with cotton and sandarach varnish, using the same care to avoid pressure and to perfectly seal the cavity that he would in using arsenic. Usually the pain ceased in a few moments and did not return. He would leave that application undisturbed for a week or ten days, if the tooth remained comfortable. On the patient's return, after adjusting the rubber dam and preparing the cavity, he would place an application of iodoform over the point of exposure, and leaving it there proceed to cap the pulp by any of the usual methods. What the final condition of that pulp would be he could not tell. He could only say that with but few exceptions they have remained comfortable, and nearly all the cases have been those where in his judgment any attempt to save the pulp by the usual methods would have failed.

He had also found it useful in cases where the pulp was dead and putrescent. In these cases, after cleaning the cavity and opening well into the roots, he would pass a little cotton saturated with the

iodoform and creasote down the canal, and seal it up. It seldom required a second application.

In conclusion, he enjoined extreme care in its use, quite as much as we now recognize is required in using arsenic. He believed that used with judgment it would prove a valuable acquisition.

DISCUSSION.

Dr. C. N. Pierce had found it of value in treating putrescent pulps, and also in cases of pulp irritation. Could a tooth with an exposed pulp be filled over it with safety to the pulp? This is an important question that his experience had failed to answer.

Dr. E. T. Darby thought that from some cause they were more successful in treating these cases in Germany than here. He recently read an article in a German journal in which the writer claimed to have had only six failures in treating one hundred cases of nerve exposure. That was a far larger percentage of success than is usually met with here. He had treated a few cases of irritated pulps by sprinkling a little iodoform powder over the point of exposure, covering it with paper, and then sealing it up with gum-damar and wax. The pain almost immediately ceased, and ten days after he renewed the application, this time using a solution of it in glycerine and carbolic acid, and filled temporarily. They had remained perfectly easy, but of the final result he could not speak.

Dr. James Truman said that in cases of recession of the gum, and consequent irritation of the periosteum, he had found almost immediate relief on application of iodoform in solution. Several gentlemen stated they had used it with good results, but all were in doubt as to the ultimate effect upon the pulp, whether it really restored it to a healthy condition or whether the immunity from pain was owing to its powerful antiseptic and disinfectant properties, acting as the chloride of zinc in the oxy-chloride cement sometimes does when the pulp becomes mummified. All had found it a quick and lasting pain obtunder.

Dr. Guilford related a case where it had been applied after a severe surgical operation for the relief of hemorrhoids, by sprinkling the powder over the wounded surface. It eased the pain

quickly, and the patient rode to his home several miles distant over a rough country road, with comfort. Several cases were related where the application had been followed by severe headache and nausea, supposed to have been caused by not thoroughly sealing the cavity.

EVENING SESSION.

Dr. William H. Trueman read a paper, entitled "The Screw in Regulating." (See page 521). He exhibited an upper cast with both canines presenting immediately behind the laterals. In this case the teeth were so short that in order to get the bands to hold firmly he fitted the bands to the teeth in the mouth, running them well under the gums. Then he took an impression with plaster while the bands were on the teeth; this is not often necessary. The screw was placed between the two teeth, working upon both at once. In two weeks they were in place without having been at all sore, or causing the patient any great inconvenience.

In another case, the lower incisors antagonized outside of the upper teeth. A screw with a loop at each end had brought them into position.

Another, where the lateral was very much inside the arch, had been corrected in a few days.

DISCUSSION.

Dr. Magill favored a plate wherever it could be used. It distributed the strain better, he thought, and gave a better chance to readily change the direction of force. In connection with plates he used either wedges or springs. He had good results in moving teeth out by taking an impression and, after making the cast, scraping all the teeth a little at the neck, and the tooth to be moved considerable. On this cast he made a simple vulcanite plate, leaving it a little thicker opposite the tooth to be moved. When made the plate fitted in tight, and pressed very hard against the misplaced tooth. After a few days, when the tooth had moved out a little, he warmed the plate opposite it and with the pliers pressed it out so that it would again press hard against it, repeating this operation as often as needful. The smooth plate

proved but little obstruction in the mouth, and formed an effective arrangement.

Dr. Guilford appreciated the value of the screw, and had used it in much the same way that Dr. Trueman had described, except that he preferred to make the bands wide and thin, and instead of soldering tongues to them he made sockets into which the nuts of the screw fitted. He then cemented the bands to the teeth with either oxy-chloride or oxy-phosphate cement. He had found that bands put on in this way and kept dry for five or ten minutes, held very firmly. When the cement was hard he slipped the screw-jack in the sockets and screwed it up tight. It was less labor, he thought, than soldering on tongues and soldering the screw-jacks to them. He had arranged them entirely by the mouth, without making a cast. He also thought, not being rigidly fastened to the bands a decided advantage. It allowed the band on the tooth to be moved to be placed nearer the crown, and effectually prevented any injury to the gums. In the plan suggested by Dr. Trueman, and shown on the casts he exhibited, the band is placed at the neck of the tooth, where the force used acts with the least advantage. That he had been able to accomplish the results shown demonstrated the effectiveness of the screw. When he read the article of Dr. Farrar, referred to by Dr. Trueman, he had been much impressed with it, but since then he had been led to doubt the value of an intermittent force, and was inclined think the freedom from pain and irritation was owing to the care taken to keep the appliance from pressing into and irritating the soft tissues. In Dr. Farrar's appliances, and also in those shown by Dr. Trueman, there would be very little risk of any undue pressure upon the soft parts, and therefore but little irritation. Since the idea had been suggested to him by Dr. Magill, several years ago, he had abandoned ligatures and in their place used thin platina or gold rings cemented to the teeth, soldering to them hooks or rings to which he secured springs cut from rubber tubing. These he was able to fix just where they were needed, and by securing them near the cutting edge, the springs rested on the teeth alone. Since he had adopted this plan he had scarcely any trouble from excessive soreness of the teeth or gums. He had re-

cently moved back a bicuspid in a case where he had extracted the first molar. In that case he made a ring to fit the molar and soldered a hook pointing back on each side, and fitted a similar ring to the bicuspid. When they were both in place, he stretched a ring cut from regulating tube, on each side, simply slipping it over the hooks. It worked quite rapidly and with very little pain. These rings may be kept in place as long as needed; they very seldom give way, and will be found very useful for many purposes, and they are quickly made. He took a strip of gold or platina, preferring the latter, and fitted it to the tooth in the mouth with a bur-nisher. Then marking with a point where the ends lap, removed and soldered it. For hooks he takes the headed pins from a vulcanite tooth, and holding them in position with a little plaster soldered them. Then cuts off the extra length and bends them into a hook. He had one objection to the arrangement shown by Dr. Trueman; he noticed that the fixed end of the screw was attached to only one tooth. No matter how firmly fixed the tooth might be, the strongest molar he had ever seen, he would never trust it alone, unless it was a case where very little force was needed. He always distributed the strain at that point between two or three teeth. He would never think of doing as was done in the case shown, attempt to draw in a canine with the other end of the screw fixed to a single molar. He thought there was great risk of injury, and preferred to be on the safe side.

Dr. Truman in reply said,—In the case referred to, while the screw was only fixed to one tooth, the direction of strain was such that the tooth was supported by all the teeth in front of it on that side. In that case, as in the others exhibited, any addition to the band at that point would have been useless. In the case in question all six of the lower front teeth were so far out that they antagonized outside of the upper teeth. The arrangement shown had been used to draw in the lateral and central of that side; a similar arrangement had been used on the other side, and the teeth had been successfully brought into position. The molar had resisted the strain of bringing in both teeth at once, and had sustained no injury so far as he could see. The arrangement shown had been

altered to act upon the canine, but before it could be applied the patient was taken sick, and when she next presented, some six months after, the canines had so far changed their position that it was deemed best to let them alone. The teeth had proved very difficult to regulate, owing, no doubt, to the patient's age, about twenty-seven. In some cases it is best to include several teeth, but in others it would only complicate matters. In regard to cementing the bands in place, he doubted whether it would answer. It might if they were made with sockets, as Dr. Guilford suggested. That was a good idea, if practical. He had tried it with the bands soldered to the screws, and it did not hold. He had tried to hold the bands in place with ligatures of gilling twine, wire, etc., but they would not hold against the force needed to turn the screw. He had used bands such as described in many cases, and always with success. The space required by the bands described by Dr. Guilford were an objection to their use in very crowded mouths, and also, the teeth did not slide over them as readily as they would over each other. The narrow bands at the necks of the teeth took up no room, and if carefully arranged could be made to act as wedges, so as to facilitate the teeth passing each other. There are many cases where bands cemented on the teeth were very useful. Dr. Guilford had met the suggestion several years ago, and he had frequently used it to advantage.

(To be concluded in November No.)

Editorial.

DISEASES OF PRE-HISTORIC MAN.

This important part of archæological anthropology has received the attention of a number of competent investigators, and the subject is growing in importance with the advance in archæological knowledge, as a means of tracing the etiology of various mal-

adies. At present, for instance, the medical world is in doubt as to the source of that dread scourge, syphilis, and further research is needed to definitely determine whether it be of ancient or modern origin. No positive evidence of its existence among pre-historic men has yet been produced, although a number of investigators claim to have found it. A syphilitic skull was lately found by the editor of this journal at the Peabody Museum of Archæology, at Cambridge, but an inquiry into its history developed the fact that it was quite possibly of recent origin, and not the remains of a pre-historic man.

According to *Gaillard's Medical Journal*, an important paper was lately read by M. Le Baron, before the Anthropological Society of Paris. Dr. Knapp, of New York, has also made a study of the mound-builders from an otological standpoint. As a result of the examination of two hundred and fifty skulls he found exostoses in forty-four. He ascribes this to the habit of carrying foreign bodies in the meatus auditorius. Mr. W. H. Jackson, M. R. C. S., of England, in a paper read before the Medico-Chirurgical Society of West Kent, cites a case of exostosis of the femur found at Lozere; evidences of toothache and abscesses of the jaw, of rheumatic ulceration of the joint in a jaw-bone, and an astragulus, found in Belgian bone caves; cases of hydrocephalus, hemiplegia, hip-joint disease, and of synostosis, or bony union of the sutures in the celebrated Neanderthal skull, the oldest one known, and many other traces of pre-historic disease and abnormality.

So far as we are aware the diseases of the teeth have not attracted the study which their relative importance as a means of determining the condition of the early races would seem to demand. To the dental anatomist these organs are an open book, upon whose pages may be read very much of the life history of the extinct races that formerly inhabited this continent. Recent investigation has determined that many of the eruptive diseases leave indelible traces upon the teeth, more especially during their formative period, and a yet closer study of the histology of the dental organs of pre-historic man will undoubtedly reward the observer with many hitherto unknown facts concerning this people.

Much may be learned, too, of the habits of a race by an examination of their teeth. If their food was of a hard, gritty character, the teeth will show extensive wear. The south-western mound-builders undoubtedly lived upon hard grains, like maize, for their teeth were very much abraded. The ancient Peruvians subsisted upon a food which permitted extensive accumulations of tartar, or salivary calculus, while the Sandwich Islanders lived largely upon succulent fruits, which contained sufficient acid to prevent any such encrustations. The north-western Indians probably existed mainly by the chase, and the condition of their teeth plainly shows that theirs was largely an animal diet.

In another department of this number of the *INDEPENDENT PRACTITIONER*, we give place to the record of some observations made upon pre-historic skulls by the Editor, which would have been manifestly out of place here. They are not of such an elaborate character as to demand any particular scientific attention, but they indicate that the theories held by many intelligent dentists need careful revision, and they open a field for more minute investigation. As soon as the exigencies of a busy life permit, we propose to try and study the subject yet further.

In the Peabody Museum are many interesting specimens which indicate a rude but effective kind of surgery among early American races, as well as remarkable tolerance of foreign substances, and recovery from what would have seemed to be mortal wounds. In one case both plates of one of the parietal bones had been cut through by some incisive weapon, probably a stone hatchet, making a wound of a couple of inches in length, but the fragments had evidently been carefully removed, the injured plates raised, and the wound so dressed that there had been complete or partial recovery, and the man had evidently lived for a number of years after the injury.

In another case a flint arrow-head had penetrated at the inner canthus of one of the eyes and there been broken off, leaving about three-fourths of an inch of it among the ethmoidal cells, yet the wound had healed and the opening through the orbital bone had nearly or quite closed.

ERRONEOUS.

In the paragraph entitled "Painting Teeth," in the Sept. No. of this journal, we stated that Dr. Buckingham recommended common oil paints for burning in, to impart any special tints to artificial teeth. We should have said—vitrifiable paint, like that used for painting on china, tiles, etc. It may be obtained at the art furnishing stores. We are obliged to Dr. W. H. Trueman for the correction.

ATTENTION !

This number of the INDEPENDENT PRACTITIONER contains sixty pages ; which makes it considerably larger than the average dental journal. We shall continue to enlarge it as the support afforded it will warrant, and hope that next year we shall be enabled to afford sixty-four pages to each number.

New Appliances and Materials.

Under this head we will undertake, either personally or by some one of our associates, to examine and report upon such new inventions appliances and materials as may be submitted to us. Articles will be received and returned at the expense of the owners, but full directions for such return must accompany them. They will be carefully used, but we cannot be responsible for any possible loss or damage.

THE OXFORD TOOTH CO.

Nearly twenty years ago Dr. C. H. Eccleston, of Oxford, N. Y., left with us a box of teeth manufactured by him, to be either used or returned. Probably the latter would have been their fate, for they did not present an attractive appearance upon the wax, but one day in our inability to find just what we wanted elsewhere, we went to the box and made a closer examination of its contents. This convinced us that some of the moulds were anatomically more correct than any that we had then found, and we commenced

their use. During all the vicissitudes of an average lifetime practice they have maintained their place in our laboratory — when we have had one — and some of the moulds we would not willingly do without. We do not use them exclusively, but when we do want them we want them badly. They are very strong, and in metal work especially we have found that they withstand the changes of temperature equal to any that we ever used.

We say not this for Dr. Eccleston's benefit, for we have always paid our bills with him and owe him nothing, but when we have found a man who in all the business dealings of an average business lifetime has not disappointed our just expectations, others have an interest in the information, and therefore we make it public.

NEW DISK CARRIER.

Some time since we purchased from Hood & Reynolds a new form of carrier for the sand-paper disks now so extensively used. The old parting nut or screw-head mandrels demanded too much time to make the frequent changes necessary. The disk carrier under consideration has a flat face, from which project four claw-shaped points, upon which the disk is forced by a small self-centering cylinder, and these effectually retain it, while it may be removed with a single motion. We have found them to be a great convenience.

DENTAL PLASTER.

If others have met with the same difficulty that we have in procuring fine plaster-of-paris for laboratory uses, they will be obliged to us for calling their attention to that manufactured by the Newark Lime and Cement Mfg. Co., of Newark, N. J. We have been using it for some time, and it is not only exceedingly fine, but it sets very hard. For taking impressions it is the best that we have ever met.

NEW BUR AND DRILL GAUGE.

Mr. Geo. E. Hodge is manufacturing a new gauge for determining the size of dental burs and drills. It is of steel, and made upon the same principles as the wire gauges in common use, being pierced with holes of a standard size, which are regularly marked from 000 to 14. It is a great convenience in ordering, as it accurately measures any kind of bur or drill.

Obituary.

THOMAS LEA BUCKINGHAM, M. D., D.D. S.

Died at his residence, No. 1228 Arch Street, Philadelphia, Tuesday, September 4th, 1883, Prof. T. L. Buckingham, in the 68th year of his age.

This announcement will fall with surprise upon the professional and personal friends of this venerable and beloved teacher and dentist. It was but so recently that he met his brethren at the meeting of the American Dental Association at Niagara, that it seems scarcely possible that we are to meet him no more on earth. At that meeting he took his usually active part in the discussions, and showed the same quickness of apprehension and sound judgment for which he has ever been distinguished, though his form seemed more bent than usual, and his step had lost the elasticity of earlier days. Soon after he returned home he began rapidly to fail, and on September 4th death closed the scene. The immediate cause of his death was failure of the vital powers through softening of the brain.

Dr. Buckingham was born in Delaware, March 9th, 1816. He obtained his education in a country school near Brandywine Springs, and spent his early life in mechanical pursuits, until about his twenty-seventh year, when he removed to Wilmington, Delaware, and began the study of dentistry in the office of Dr. A. C. Reynolds.

In 1845 he removed to Philadelphia, where he entered into partnership with Dr. Lee, and in 1846 commenced practice alone.

In 1850 he became a member of the Pennsylvania Association of Dental Surgeons, and was seldom thereafter absent from a meeting until his death.

In 1851 the Philadelphia College of Dental Surgery was organized, and Dr. Buckingham was assigned to the chair of Mechanical Dentistry. This college was merged into the Pennsylvania College of Dental Surgery in 1856, and he held the same chair, but in 1857 he exchanged for that of Chemistry, and in this position he remained until his death, being at that time the oldest continuous dental teacher in the United States, and probably the world.

He was one of the founders of the *Dental Times*, and was a liberal contributor to its columns. He graduated in medicine in 1851, and in 1853 received the degree of Doctor of Dental Surgery from the Baltimore Dental College. He was President of the American Dental Convention in 1860, and in 1874 of the American Dental Association.

We gladly give place to the following very just estimate of his character as a man, by one of our associates:

"Another excellent and faithful man has been called to the spirit land. Professor Buckingham was one of the wisest known and most popular members of our fraternity. Few men have done more for the benefit of our calling than did this estimable pioneer of dental instruction.

"Future meetings of the American Dental Association will miss his genial and fatherly presence, and his many old friends will miss the hearty grasp of the proffered hand that betokened an affectionate welcome. He was ever a conspicuous figure in the various professional gatherings of his city and State, and frequently visited meetings of societies in other places.

"With the Pennsylvania College of Dentistry he was long identified, and so wedded was he to its interests that to think of one would suggest the other.

"Although at times exceedingly earnest in giving expression to his views, and decidedly impressive in his teachings, gentleness and

unobtrusiveness were marked characteristics of his nature. So kindly in disposition and so considerate was he of the feelings of others that he made no enemies, while his friends were legion.

“None knew thee but to love thee,
Nor named thee but to praise.’

“Blessed be the memory of so good a man.”

C. E. F.

Current News and Opinion.

NO TIME FOR READING !

Accompanying remittances from our subscribers are many compliments and words of congratulation for the INDEPENDENT PRACTITIONER. One of the “old subscribers,” however, acknowledges having received bills, and copies of the journal for a long time, but he “don’t consider that he owes anything,” because he “never gets time to read such things, or even to take them out of the *wrappers*.” He also states that he has “writen” before to have it “stoped.” (*sic.*)

Professional men may perhaps be excused when from lack of early opportunities both orthography and penmanship are at the lowest ebb. But for men utterly wanting in intellectual or literary attainments to persistently close their eyes to all avenues of improvement, little excuse can be offered.

The leading members of all professions amidst their many labors usually find time to read their periodicals and write for them, and many hold positions as college instructors besides. But there is a certain class of individuals who are unwilling to pay a trifling subscription fee, excusing themselves on the ground that they “have no time for reading.” No time to keep up with the literature of their calling !

Such persons are the very ones who *ought* to take journals, and to profit by their teachings.

C. E. F.

ONE JOURNAL ONLY.

A distinguished member of our fraternity who "*talks progress*" loud enough, remarked at the recent meeting of the American Dental Association that "one dental journal if well boiled down" was all that was needed in the United States.

Goodness gracious, what a "progressive" idea! A single dental periodical for a nation!

Only literary ability enough in our whole country to stock a single monthly magazine? Only subscribers enough to maintain *one*?

We believe in getting as much light as it is possible to obtain from every source—all the good we can secure from every quarter. A single journal can hardly be expected to satisfy the demands of our whole body, even though well "boiled down." C. E. F.

PREPONDERANCE IN SEXES.

According to Mr. Gosselin, Secretary to the British Embassy, Berlin, in an official report, he shows that London, in comparison with other cities, stands pre-eminent in the preponderance of females, the proportion being as 113.7 to 100. On the other hand, in Paris, in 1876, there were only 88.5 females to 100 males; in St. Petersburg (1881) 80.8, and in Rome (same year) 79.5.

If any one will, just at nightfall, take his stand in the lower part of Regent Street, or in the Haymarket, or upon the steps of the Criterion Restaurant, in Piccadilly, he will not dare dispute the statistician who affirms that, in London, the females are to the males in the ratio of ten to one, with wickedness in the same proportion.—EDITOR.

DENTAL SURGERY.

Christopher Heath, the well-known English surgeon, says in a late address: "A most convincing proof of the scientific estimation in which dental surgery is now held, was given two years ago, when, at the International Medical Congress, which met in this city, the very active section of dental surgery contributed its full quota to the success of the meeting, and still more recently the Council of the

Royal College of Surgeons, of which I have the honor to be a member, has conferred upon one of the leaders of the dental profession the unsought honor of its fellowship, coupling the name of Mr. John Tomes with that of Professor Huxley, as representative men of science worthy of especial regard."

SALIVARY CALCULUS.

Hyrtl, the anatomist, regards the tartar which collects on the teeth as a natural means intended for their preservation, the dentists to the contrary notwithstanding.—*Exchange*.

Hyrtl would probably regard dandruff as a natural means intended for the preservation of the hair; and dirt "a natural means intended for the preservation of the skin." What fools we mortals be.—ED.

AMERICAN ACADEMY OF MEDICINE.

The annual meeting of the Academy will be held at the New York Academy of Medicine, 12 W. 31st Street, New York, on Tuesday, October 9th, (three o'clock P.M.), and Wednesday, October 10th, 1883.

RICHARD J. DUNGLISON,
Secretary.

INODOROUS IODOFORM.

The peculiar odor of iodoform is found to be well masked by the addition of attar of rose, one minim to the drachm; or of essence of rose geranium, three or four minims to the drachm.—*Polyclinic*.

DENTAL MEETING.

The Fifteenth Annual Union Meeting of the Seventh and Eighth District Dental Societies of the State of New York will be held in the City of Buffalo, on the 30th and 31st days of October next. The dentists of Western New York and of other localities are cordially invited to be present.

J. S. WALTER, Sec. 7th Dist. Soc.

C. S. BUTLER, Sec. 8th Dist. Soc.

Selections.

NOTES UPON A METHOD OF ROOT-FILLING.

BY CHARLES S. TOMES, M. A., F. R. S.

There are certain qualities which a perfect root-filling should possess, which cannot be said to be united in any one material in use for the purpose. It should be easy of insertion, for it often has to be introduced into narrow and tortuous channels; at the same time it should be easy of removal, as it is quite impossible to secure uniform success with dead teeth, and intense suffering or the loss of the tooth may be the result of a root-filling which cannot be got out in the event of inflammation supervening; gold or tin are neither easy to insert nor to remove. It must completely seal the pulp chamber, so that fluids cannot enter from the apical foramen, and this wool or such things cannot do. It should be of a bland non-irritating character, as with all care the escape of a little from the apical foramen may occur. For some years I have been in the habit of using occasionally, when I had pretty full confidence in the healthiness of the root, shellac drawn out into fine threads, introduced cold and packed and consolidated with hot nerve canal instruments, but these fillings were very difficult to remove if the occasion arose. It has lately occurred to me that among the varieties of solid paraffine, such as is used for imbedding tissue for the purpose of cutting microscopical sections, a perfectly indifferent substance of any required melting point could be found, and that if one which melts at but little above the temperature of the body be selected, it would be easy to introduce it in a fluid condition. If a hypodermic syringe be filled with such a paraffine, to which two or three drops of carbolic acid have been added, it will be found easy to introduce the nozzle of the syringe a little way up the root canal, the syringe having been moderately heated; when the piston is pressed the liquid paraffine will of itself have run a good way along the previously dried root. An excess having been left in the pulp chamber and cavity of decay, a heated Donaldson's

nerve bristle worked up and down the canal will soon carry the paraffine to the very end of almost any root, and it can be kept fluid in the tooth either by touches of a hot instrument, or by blowing at it with a hot air syringe. The roots may be filled entirely with paraffine, or filaments of wood, or even threads of cotton wool may be passed up into the melted paraffine; probably the introduction of fine fibers of wood will be found to be an advantage in most cases, or fine wire may be substituted for the wood. So far, I have every reason to be satisfied with the results. It is much less troublesome than any method of root filling which I have previously practiced, for the first jet sent in by the syringe does so much towards the filling of any but the finest canals; it seals the canals absolutely, so far as experiment out of the mouth can show; in its introduction the risk of forcing the decomposed products out at the end of a root by a piston-action is reduced to a minimum; and it can easily be got out by warm instruments if the need arises.

Whether it will fulfill my expectations time alone will show; there is but little novelty in the idea, but the method of employing some innocuous body of low melting point with a hypodermic syringe may perhaps serve to diminish the tiresome nature of the operation of root filling, so I have communicated this note on the subject.—*Journal of the British Dental Association.*

THE USE OF TOOTH BRUSHES.

If dealers will but call the attention of customers to the following rules for the use of brushes, so much complaint will not be made about their wearing qualities :

Directions for using tooth brushes—Tap the brush before using it, to see if you can jerk out any loose bristles.

Tap the brush after using it, to shake out the water, and put it away fairly dry.

Do not keep it closely shut up in a brush tray or dressing-bag bottle.

Causes of complaint—Loose bristles may be found in a new

brush in consequence of the wire having cut the bristles in half while drawing them into the hole, the knot being too full.

Bristles may project beyond the level of the rest, the knot being too slack ; clip them off ; do not withdraw them and thereby make the knot still more slack.

Bristles will perish if brushes are put away while still wet, and left for days to get thoroughly dry ; after a time even with the greatest care this will happen.

Brushes will smell offensively if closely shut up when wet ; they will also become discolored.

Tooth brushes will wear out in course of time ; some people use them for months, while some will cut them down very quickly, thus :—

Teeth with sharp edges will cut bristles.

Teeth with irregular spaces will catch individual bristles and forcibly withdraw them.

Some people select a brush too soft for their requirements, and make it harder by pressure, breaking down the bristles, which they would not do if their brush was sufficiently hard.

A tooth brush being an inexpensive article, it is wiser, therefore, to throw it aside before it is thoroughly worn out, than to keep it as an annoyance, which it will be if used too long.

CELLULOID.

A French inventor has succeeded in producing remarkable results by means of celluloid printing plates, both from engravings and type. A copy of the engraving or the type is made with a special cement, which sets in about twenty minutes. A sheet of celluloid is employed to obtain a counter-impression from this, by means of a moderate degree of heat, and this is then prepared by the ordinary means for the press. A celluloid plate can be made in an hour, and one has been subjected to twenty-five thousand impressions without losing its sharpness and peculiar clearness of detail.

HYPERIDROSIS.

EXCESSIVE SWEATING OF THE HANDS.

For this annoying condition, Dr. F. H. Alderson says in the *Lancet*, July 28th, 1883 :

The patient should soak his hands night and morning in warm water, in which should be dissolved about two drachms or half an ounce of the chloride of ammonium, and about twice as much carbonate of soda (crystals), enough water to be used to well cover the hands. I generally prescribe for my patients sufficient for six applications ; and as skins vary in tenderness, tell them to use as much as will temporarily to a slight extent cause the wrinkling known as *cutis anserina*, a condition which I describe to them as looking like the hands of a washerwoman. After well bathing, the hands are to be rubbed with the following embrocation : Tincture of iodine one drachm, compound camphor liniment and glycerine, of each a drachm and a half, and compound liniment of belladonna one ounce. (If for the hands, a drachm of eau de cologne makes the embrocation more agreeable.) The embrocation to be applied twice a day. A cure quickly follows. This treatment is equally appropriate and successful for excessive sweating and even bad smelling feet, for that odor is due to the excessive function of the sudoripharous glands.

CINCINNATI.

The city seems to be in a bad way. Her new Board of Health, according to the *Lancet and Clinic*, consists of five saloon-keepers and a quack doctor, the latter having, as one of his advertized specialties, a peculiar operation for the restoration of lost virginity. The doctor may be a thoroughly efficient sanitarian—we never heard of him before—but his operation so manifestly supplies a long-felt want in Cincinnati, that we fear he can hardly find time for the proper discharge of his official duties.—*Columbus Med. Journal*.

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SOME NEWER REMEDIES.

PARKE, DAVIS & Co. respectfully announce to the medical profession and the drug trade that they have now on hand and are prepared to furnish on orders the following articles of more recent introduction to the materia medica:

EUPHORBIA PILULIFERA. This Australian drug is introduced as a remedy in asthma. The observations which have been conducted with a view to testing the original claims for it in this affection have strongly corroborated them, and there is abundant reason to believe that we have in Euphorbia Pilulifera a very valuable addition to our list of remedies in this troublesome affection. We solicit further reports.

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THE Independent Practitioner.

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Original Communications.

DIFFICULT DENTITION AND THE USE OF THE GUM LANCET.

BY J. MORGAN HOWE, M. D., M. D. S.

Primary dentition has long been regarded as a cause of many infantile ailments. This view, based largely on clinical observation, has been that of some of the most eminent physiologists and practitioners, and has come to be so commonly accepted that it is quite probable that the origin of many disturbances has often been falsely attributed to teething, as it furnished a convenient scape-goat for indolence and ignorance. A just antagonism of the evil has perhaps been the pendulum rod on which some have swung over to the conclusion that it is all a mistake, to suppose that so simple a process is capable of producing any serious disorders of nutrition, or of functional activity; and to fortify this position the fact that *dentition is a physiological process* is set forth, with apparent confidence that it should be sufficient to convince all disbelievers in this opinion. Although the use of this truth as basis for an argument has had force or plausibility enough to have caused its repetition by several writers, it hardly seems to be conclusive, and we propose to offer some facts and suggestions as reasons for believing that the

deductions of so many, reached by clinical experience, that dentition is a cause of nervous irritation and of numerous reflex disturbances, is not a mistaken one; and in doing so, we quote from two writers who, from their position and special dental knowledge, may be the more likely—if their views are erroneous—to mislead.

In an address on Oral Surgery before the American Medical Association, 1882, Dr. D. H. Goodwillie in deprecating the fact that teething has often been given as the cause of death in mortuary certificates, says; "Alas! a normal physiological process the cause of death. If first dentition in the child is the cause of death, why not carry it through the process of second dentition, which lasts nearly to adult age? Perhaps it might be found that malaria, smallpox or some of the other diseases lie buried in the jaws." And Dr. W. C. Barrett in an editorial in the *Independent Practitioner*, March, 1883, says; "About the time when the molar teeth are in process of eruption, digestive ills of all sorts attack the child, and to the mere physiological process of cutting the teeth is attributed the flatulence, diarrhœa, convulsions and death," etc. * * "Digestion and assimilation being properly performed, there is nothing in the mere process of the eruption of the teeth which can cause any serious disturbance. Nature has provided for the absorption and disappearance of the tissues covering the growing teeth without any febrile symptoms, any diarrhœa or nervous convulsions;" and again he says; "The gums and investing tissues have not such an exquisitely nervous organization, are not so thoroughly supplied with nerve fibers as to produce any grave disturbances by the mere force of an advancing tooth. There is little or no sensitiveness in the raised gum. Pressure over the coming tooth is not annoying to the infant; on the contrary it often seems grateful. Whence then this idea of dangerous reflex nervous disturbances?"

It seems to have been Dr. Goodwillie's intention to ridicule the idea of dentition ever being a cause of death, basing the assumption of its absurdity on the fact that it is a physiological process, which he calls normal! Whether he meant to assert that it is always normal may be doubted. If that were true, it would be of value to the race as well as to his argument; if it is admitted that it is not

always a *normal* physiological process, it would be interesting to know of how many other human physiological processes the claim would be made, that they could not be the cause of such irritation and disturbance as directly or indirectly to cause death. All the tissue changes and movements involved in the developmental processes of the human animal are so frequently attended with more or less manifestation of abnormality, that it is difficult to perceive why any one should assume that dentition is exempt from anomalies which so commonly cause other physiological processes to produce serious derangement of the system. Merely to mention gestation and parturition, is to call to mind morning sickness, eclampsia, post partem hemorrhage, and various other complications. There is abundant reason for regarding dentition as similar to these processes, in that it makes great demands upon the vitality of the subject, and that its expression is one of irritation during a considerable portion of its continuance. One of the earliest signs of the advancement of the partly calcified developing teeth, is increased salivation—drivelling; it is as rarely absent perhaps as the morning sickness of pregnancy, and seems without doubt to be the result of gland excitement, through the irritation of afferent nerve filaments in the tooth pulp. This phenomenon, generally accompanied with fretfulness and signs of pain, makes its appearance at the time (fifth to sixth month) * when the developing incisor teeth would be advancing toward or into the orifices of the alveolar crypts, the margins of which should be enlarging by absorption to admit of their passage; but in case of irregularity of the eruptive force, and lack of corresponding absorption of the obstructing tissues, pulp irritation would necessarily ensue. And we may well suppose, with any such anomalies, a greater or less degree of local hyperæmia. Similar reflex excitement of the salivary glands, by irritation of the filaments from the trigemini in the tooth pulp, is witnessed daily in the dental chair, the saliva being frequently thrown out in jets, upon instrumental or other irritation of the dentine, or dental pulp; and it is equally patent that dental irritation of whatever kind is generally attended with increase of saliva-

* Tome's Dental Surgery.

tion, the glands being excited much more readily by irritation of nerve filaments distributed to the deeper parts, than of those in the gum tissue, for the latter, as Dr. Barrett says, "have not such an exquisitely nervous organization."

In turning the attention to the development and eruption of the permanent teeth, we find no such disturbances of the system as have been generally attributed to teething in the infant subject; the conclusion is therefore not unnatural, that first dentition is not the baleful process it has been called. We think, however, it is sufficient to call attention to the fact that the period is one of peculiar susceptibility to derangement of the harmony of vital processes, from any cause. The liability of the alimentary tract to irritation from slight variations of food, from thermal and atmospheric impressions, is indicative of the liability of all the organs and tissues of the body to be disturbed by predisposing or immediate influences, so that anomalous movements in the physiological mechanism are more likely to be produced, and to disturb the system when they occur. Dr. Barrett attributes to injudicious feeding almost all the ailments that have frequently been considered due to teething. It is one of the most common and important causes of infantile ills, but we think dentition is perhaps as common, and is equally as important a factor in producing those well known disturbances which so frequently endanger life at this time.

There are occasional instances in second dentition, during the efforts of nature to erupt the third molar, especially of the inferior jaw, of irritation which differs, if at all, only in degree from that which is commonly produced by the eruption of the deciduous teeth. This has occurred sometimes under our own observation, when, neither at the time nor after the appearance of the tooth, could any unusual position of the growing tooth or of surrounding parts be discovered, and no reason could be assigned, except a lack of absorption of the super-imposed mass of gum tissue, in response to the probably too fitful and irregular pressure of the tooth. Such irritation is, however, more frequently observed, when (1) the space between the posterior surface of the second molar and the compact bone of the ascending ramus is insufficient for the passage of the

crown of the third molar, or (2) when the latter tooth is tipped anteriorly, so that its progress is arrested and the eruptive force is expended on the posterior surface of the second molar. Such complications are not very uncommon, and from them frequently arise reflex neuralgias of the severest nature, often with fever. Without detailed subjective symptoms these cases would afford fruitful ground for difference of opinion, for in many there are no local indications of inflammation, either of the soft tissue around the developing tooth or of the second molar, and no soreness of the gum or of the growing tooth to pressure; and in other cases, principally those referred to, even when a considerable degree of inflammation in the soft tissues is present, the local conditions seldom if ever appear adequate to an explanation of the severe reflex neuralgia from which the patient suffers. We would be very likely to look elsewhere for a cause of such violent distress as frequently occurs, rather than to a developing tooth, if the patient's own apprehension of the cause were taken from us. During first dentition we have no subjective symptoms to aid us in the formation of diagnoses, and these cases of difficult eruption of third molars may well be considered fair illustrations of the irritation possible from all impeded dental growth. Neuralgia is generally the form of greatest suffering in these cases of anomalous wisdom teeth, the pains often extending to the head and neck, and sometimes to the arms, although it is not confined to this, for the nutrition of other organs and tissues may be disturbed. Among those who have observed the phenomena produced by these anomalous teeth of second dentition, there are probably few who have regarded the irritation of the obstructing tissue as the cause of the most serious symptoms; the majority would be likely to attribute the disturbances to their true cause, viz: *pulp irritation*. There seems to be abundant reason for regarding the pulp as the point of irritation of afferent nerves when reflex actions are produced, whether it occur through obstruction to the growth of a wisdom tooth, or the deciduous teeth. In the latter it is quite true that there is no anomaly of arrangement worth considering, and "nature has provided for the absorption and disappearance of the tissues covering the growing

tooth," but we see no more reason for claiming that this is accomplished in perfect ratio with all the other movements involved, than that all other physiological processes are accomplished in a perfectly normal manner. When the possibilities, in the direction of nervous disturbance, from an irritated pulp are considered, argument against dentitional irritation, because the gum is not an exquisitely sensitive tissue, seems hardly convincing. When the susceptibility to derangement and to nervous irritation of the infant be considered, the pulp irritation of anomalous wisdom teeth may, we think, give us some light on the sufferings sometimes endured by the little ones. The irritation so frequently produced by first dentition begins, as we have endeavored to show, at an early period, and may cause serious reflex disturbances at any time thereafter. The emesis, diarrhœa, and convulsions of this period, are of course liable to be produced by other causes, but the clinical experiences of numerous competent practitioners has been amply sufficient to confirm the old opinion, that these phenomena are often due to dental irritation, so that the conclusion will hardly be disturbed by argument based on the fact that dentition is a physiological process, nor by negative testimony from those who have not observed such ailments under circumstances which have convinced them.

It must be admitted that positive and satisfactory diagnoses are not always easily formed, but the difficulty is probably not greater in these cases than in most others where subjective symptoms are wanting. There are many instances which appear to indicate dental irritation so clearly as to hardly leave room for doubt. Such are those in which nursing infants occasionally give sudden manifestations of distress, with gastric, intestinal or cerebral disturbance, without other assignable cause; there is increased salivation, and the child not unfrequently indicates in various ways that the seat of pain is in the mouth. All this is much more likely to occur in the case of infants who do not nurse, but it cannot fairly be attributed to improper feeding when the child has been thriving on the same food up to the period of such disturbance. Such cases have occurred, and are appearing more or less constantly, with numerous variations of circumstance. The literature of this sub-

ject is very meager, but Dr. Samuel Sexton * has called attention to the fact that some aural diseases have their origin in dental irritation by reflex action, and has graphically shown how this takes place through the Otic ganglion. He has clinically recognized the fact that the processes of dentition, especially of the deciduous teeth and the wisdom teeth, often cause this irritation, as well as dental caries, peridentitis, and alveolar abscess.

It is not our present purpose to endeavor to indicate the avenues by which the numerous reflex actions from dental irritation are accomplished ; they are probably often of a very complicated nature, but I will merely call attention to the direct connection of the trigemini with four ganglia and one plexus of the sympathetic system, whose controlling influence over vascular supply and gland action is so well recognized, and to the comparatively simple manner by which cerebral circulation may be influenced through the vaso motor nerves of the internal carotid artery and its encranial branches, through the connection of the fifth pair of nerves with the Otic ganglion and the carotid plexus.

The treatment of cases giving evidence of difficult primary dentition should of course be governed by a careful consideration of that process itself, as well as the character and severity of the symptoms manifested in each individual case.

Whatever means give reasonable promise of adding tone to the system, may cause the disappearance of reflex symptoms, whether produced by dental irritation or other causes. Hygienic measures, especially if these have been neglected, are always to be considered. High temperatures have a general debilitating influence, and on this account reflex phenomena are more easily provoked under these conditions, a change of location giving lower temperature and other favorable circumstances often proving beneficial. † Change of diet may be indicated, and therapeutic measures judiciously directed to meet the symptoms of the case will often be all that is needed to cause the latter to subside, and enable the processes of development to progress more harmoniously.

* American Journal Medical Sciences, January, 1880 ; also circular of information of the Bureau of Education, No. 5, Washington Government Printing Office, 1881.

†(Brown-Sequard, Cayrade.) Kuss Lectures on Physiology, p. 54.

There are instances, however, in which all such means are insufficient, affording at best but partial and transitory relief; the child gives frequent evidences of oral suffering, or of nervous irritation by reflex disturbances; in some such cases the gum lancet affords the means of rendering the most prompt and efficient relief. Its use is clearly counter-indicated in such early stages of teething as when the advancing teeth are probably obstructed by alveolar tissue, but when the enlarged gum indicates both to sight and feeling the presence of the tooth beneath it, when the former tissue has a tense appearance (whether it is sore, swollen and red, or not), with the disturbances before referred to, which more general treatment has failed to relieve, a free incision through the gum to the tooth, with a sharp lancet, will in most instances be promptly followed by very marked amelioration of all symptoms of irritation. We have repeatedly performed this trifling operation with such salutary results, in very few instances without them. The ineffectual use of the lancet may prove a mistaken diagnosis, or that the irritation proceeded from teeth less advanced in development than those released by the incision; it does not prove that dentition is incapable of producing irritation which may, through reflex action, endanger life. The instances, however, in which gum lancing is not followed by relief, *when it has been indicated* by the conditions and symptoms, are so rare that it may be regarded as one of the most certain and effectual of minor operations, and so far as we know is contra-indicated only by a hemorrhagic diathesis.

The objection, urged sometimes, that the gum will be made much harder (if it should heal) by the formation of a cicatrix, and the temporary relief hoped for be followed by an aggravation of the difficulty of absorption of the gum, is invalid, from the fact that a cicatrix is not found after gum lancing, and if there should be a formation of cicatricial tissue it would absorb more readily than the primary tissue.

The valid objection to the lancing of the gums of teething children is the "almost indiscriminate" practice of it, which Dr. Barrett believes is "falling into desuetude." There are probably few who will not be glad with him, and hope that all other practices

that approach the indiscriminate may find the same limbo; but judicious gum lancing, practiced with discrimination and judgment, not for the purpose of depleting a congested gum but to release an imprisoned or obstructed tooth, is both reasonable and commendable, and its value should not be overlooked.

Cases of obstructed eruption of wisdom teeth often demand local treatment.

Those whose position in the angle between the body and ramus of the jaw causes them to be covered with a mass of soft tissue, which is not absorbed sufficiently to prevent it becoming inflamed by the pressure of the growing tooth and of antagonizing teeth in the superior jaw, may be made less troublesome by proper lancing, but permanent relief is only obtained, in many instances, by the removal of the tooth for which nature has failed to provide a place.

Extraction must also frequently be resorted to when neuralgic or other disturbances arise through obstruction of the wisdom tooth by the second molar, or by the latter together with the maxillary ramus, or when the former is tipped forward so that its progress is arrested by the second molar. When the third molar occupies so nearly a horizontal position that the crown is in contact with the neck of the second molar, the extraction of the former is often an impossibility, without resorting to an entirely inexpedient operation, and in such case the removal of the second molar, the obstructing tissue, must be chosen as the least evil.

But wisdom teeth placed anomalously in the maxillæ not unfrequently attain to complete development before meeting in their advance such resistance as to cause pulp irritation with local and reflex disturbance, and as interference is not demanded, it would unquestionably seem to be a blunder.

ANÆSTHESIA.

The experiments of M. Paul Bert show that the method of administering chloroform is best and least dangerous by which the patient is quickly anæsthetized by a large quantity, and then kept under the anæsthetic by a much smaller amount.—*L' Union Med.*

SOMETHING ABOUT ENGINES AND HAND-PIECES.

BY NORMAN W. KINGSLEY, D. D. S.

I desire to avail myself of the columns of the *INDEPENDENT PRACTITIONER* to make some comments upon the above subject.

It is becoming an important question as to how far machinery is a valuable adjunct in the practice of dentistry. If it be labor-saving, without a more than compensating loss of time or other objectionable feature, then it becomes positively an adjunct; but, if the most that can be said for it is that it furnishes but another method of doing the same thing, then its advantages are negative. There is a degree of fascination about machinery that encourages one to prefer its manipulation, rather than to accomplish the same object by more direct means.

If an artist discovered a method of painting pictures, or modeling statuary by machinery, equally well with former methods, he would no longer wait for inspiration, but would devote his brain power to directing the machine.

The status of machinery in dentistry is not fully settled; it is on trial; nevertheless certain things are definitely determined.

Machinery comes in competition with, and is intended to supersede hand labor. It will do this just so far as it will produce better results with less drain on brain or muscle power.

A machine that requires more time and care in its adjustment and management than it would take to do the same thing by hand, is not likely to become a labor-saving machine. One objection to any machine is that dependence upon it may entirely unfit one for doing certain things that should be performed directly by hand.

Attainable results being substantially equal among competing machines, that machine is the best which is made up of the fewest parts, has the least number of mechanical devices, and requires the least attention for keeping it in order. The value of the dental engine is a fixed and incontrovertible fact. Take the White dental engine for example; every part of it from pedal to cable is of the simplest character, while its possible movements are almost

universal. It is a *labor-saving* machine in every sense of the word, requiring but little care to keep it in order, and producing better and quicker results than can be done by hand.

But the best engine is deprived of its value by an inferior hand-piece. Ten years of experience by thousands of dentists, has been quite enough to show that an imperfect hand-piece becomes one of the worst tools a dentist can attempt to use.

A score of different appliances have been put on the market and are undergoing trial upon their merits, and we can now, from experience, begin to form a correct judgment. The first made were slender and delicate in size, not much larger than a pocket pencil case. This was a compliment paid to dentists, who, like all skilled artisans, prefer delicate rather than clumsy tools.

But the necessity for superior instruments has shown that less than a certain limit in size will not give a reliable instrument. It is much the same with watches. The best possible time-keeper cannot be made in the smaller sizes. Experience has also shown that the larger hand pieces can be even more steadily manipulated and controlled than the smaller ones, and so any objection to the increase in size does not hold good. There are two kinds of hand-pieces in the market, which involve radically different principles. For the sake of distinction we will call them chucks, and latch pieces.

The principle of a chuck is so well known that a description is unnecessary. When properly applied it will hold whatever material it grasps, and revolve it around a center. A chuck, within certain limits, holds firmly and equally well whatever it incloses, irrespective of size. It is the simplest principle that has ever been devised for the purpose, and manifestly is the one principle which should be applied to the manufacture of hand-pieces. It is somewhat singular that any other principle should ever have been attempted. Of those now in the market made upon a different principle, that which is the latest and is intended to supersede all others is the "Cone journal hand-piece, No. 6," and I make this use of its name simply to illustrate my comments upon the principles involved in its construction.

I have never seen a machine intended for dentists, that was such a beautiful piece of mechanism, irrespective of its use. It is made up of nearly forty separate parts. Latches, locks, springs and slides appear to abound, and each and every part seems as delicately constructed and finely adjusted as the works of a watch.

This very abundance of parts and apparent complexity I regard as an objection. It is more liable to derangement, and more difficult to put in order and keep so. It is no small undertaking to separate all these pieces and put them together again correctly. It requires genius akin to that of the Yankee clock mender, and even if in every other respect it was a valuable tool, this one feature would deter many from its purchase. But the most serious objection to latch and lock hand-pieces is that heretofore every one of them began immediately to show such wear that the bur became unsteady, and in time completely valueless. I believe that a wear sufficient to produce 'unsteadiness' is the inevitable concomitant of all hand pieces that are made with locks, latches, and springs. They may be made never so true in the start, but rust and wear begin immediately, at first imperceptibly, but gradually increasing until the instrument should be abandoned; in fact it should not be used one moment after unsteadiness in the bur can be detected. Another objection to the latch hand-piece lies in the necessity of having the bur stems or mandrels the same diameter, and slotted for fastening. The most minute variation in diameter gives unsteadiness. My own experience with hand pieces includes nearly every one which has been put upon the market, and out of all I have found but one which was not open to some, if not all of the above objections. A chuck hand-piece, when properly made, will obviate all such difficulties. It will run true for years, and within moderate limits will admit burs of different sizes equally well. I have been using one made by Hodge, for three years constantly, and it runs to-day as steadily and true as the day I bought it, and has not involved one penny of expense.

I do not say that no other hand-piece can equal it, but I do believe and say that it is impossible to equal it upon any other than the chuck principle, and I do not know of any other that is its equal.

ANTISEPTIC TREATMENT OF DISEASES OF THE DENTAL PULP.

BY DR. ROSENTHAL OF LIEGE, BELGIUM.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT COLOGNE.

Before I give you my own conception of antiseptic treatment of the diseases of the dental pulp, allow me to present some of the ideas given by Witzel in his work on this subject.

In the first chapter, entitled, General Communications on the Treatment of the Dental Pulp, he says: "When pulps are freshly exposed and have not yet been in contact with saliva, I generally succeed in saving them; but when they are inflamed the same treatment does not give me such good results."

In the second chapter, under the name, Action of Arsenious Acid, he says that when a tooth cannot be filled, he prefers to extract rather than to devitalize it. However, when the patient wishes to keep the tooth he thinks it may be his duty to do this. The deep action of arsenious acid is not demonstrated. "I have shown," he says, "at the meeting at Cassel, specimens demonstrating that arsenic applied to a healthy, uninjured pulp, attacks only the superficial tissue of the organ. The same thing occurs in inflamed pulps." One of the specimens was a molar exposed at one of the cornua, where the action of the medicament was shown at the point of the exposure, and in the direction of the softened tissues.

Though the action of arsenic is not entirely known, it is undoubted that its special action is the cause of great changes at the apex of the roots. The circulation of the blood continues even after the sensibility has disappeared in the cauterized parts, and stops only sometime afterward. You may find that in the parenchyma of the pulp, blood extravasated from the vessels which have probably been ruptured by the medicament.

Arsenic has no action whatever on the dentine, and to prove this Witzel makes three experiments. In one he applies arsenic with oil of cloves on a section of a tooth, and does not find any change. In the second he applies it with creosote, and a day afterwards finds

a little spot stained, but in applying creosote alone the same spot reappears. The third experiment was to cut a healthy temporary canine into two parts, one of which he left for eight days in arsenious paste. In comparing the two portions under the microscope he does not find the least action on the dentine.

Chapter third treats of the question of capping. The following are the chief points he makes.

The exposed part of the pulp must be entirely cleared from any decomposed tissue.

The ingredients used must be such as to favor the return to normal conditions.

The exposure must neither be cauterized or irritated by the cap.

The covering must be in close contact with the pulp, and be strong enough to resist the pressure needed to condense an amalgam filling.

As a general rule, a tooth whose pulp is exposed should never be immediately filled with gold.

He then gives his mode of procedure, which consists in washing the cavity with a mixture of phenol and tannin, while he excavates all the decayed tissues with spoon-shaped excavators. Should the pulp be exposed and bleed, he uses the same mixture, which he leaves some minutes on the pulp. Then he covers the exposure with a varnish made of collodion, gutta percha and phenol, and covers with oxy-chloride of zinc, and fills with amalgam. If any pus should be found after excavating, he thinks that the part of the pulp in the crown ought to be amputated.

In the fourth chapter he says that it is difficult to judge at first whether the pulp should be capped immediately or cauterized and amputated. He only amputates pulps of molars, and sometimes those of the bicuspid, when the pulp chamber has a suitable shape.

When a non-exposed pulp has given pain for a couple of hours at a time, and after it has been exposed it is found of a cherry red color and inflamed, he thinks it should be amputated.

Before removing the dressing and the arsenic he cleans the gum around the tooth, and disinfects it. Then he prepares the cavity in such a way that the pulp may be easily reached, both by the sight

and by the instruments. When all is ready he takes a sharp drill, dips it in phenol, rapidly removes the rest of the dentine which covers the pulp, cuts the pulp at the base, and bathes it in phenol. He then caps it in the same manner as the ordinary exposed pulp.

To conclude, we may say that Mr. Witzel's work is most commendable from the studies of the action of arsenious acid, by which he has been led to the discovery of this mode of treatment. The illustrations are remarkably good, and add a great deal to the value of the book.

This treatment I have employed for about eighteen months, and have received much satisfaction from it. The weak point of it is when he applies phenol to a simple non-inflamed pulp, and it is, I think, the reason of the failures of which he complains. A pulp so exposed and non-inflamed, even if it has given pain, ought to be considered as a simple cut in any other part of the body, and all our efforts should tend to have the wound healed by first intention, and as there is no infection there should be no escharotic nor antiseptic medication. Generally, pulps in such condition may be recognized. The principal symptom is when all pain stops after the cavity has been thoroughly excavated and is free of all material which could excite the pain. Sometimes, however, slight pain may continue on account of the air coming in contact with the pulp, but we may easily allay it by applying a little piece of dry wool-cotton on the exposure.

Another point in which I cannot agree with Mr. Witzel is when he advises amputation without trying any other means to preserve the integrity of the pulp. I think the example he gives turns entirely against his theory, when he says that a dentist who has to pronounce his diagnosis on a diseased pulp is in the same situation as a physician who, having to examine a patient, would put him in a barrel and look at him through the bung-hole. When a pulp does not stop aching after the thorough excavation of the decayed tissue, it may surely be considered as partially inflamed. Here we have infection, and with reason we may use escharotics and antiseptics. After disinfected I treat the exposure as usual, but add a little excess of phenol. If the pain does not stop, then only

would I advise the treatment recommended by Witzel, and amputate the pulp.

I have but few words to add. In science, classification is of the greatest importance for comprehension. Formerly we used to classify caries under eight varieties: the white, the black, the dry, etc.; to-day we have only three: caries of the first, the second, and the third degree.

In medicine we have the same classification for many diseases; for example, burns are divided into those of the first, the second and third degree.

Why should not we classify the diseases of the pulp in the same manner, and say when a pulp is exposed and not inflamed, that it is of the first degree; when it is partly inflamed it is of the second degree; and when it is entirely engorged that is of the third degree. A single word would thus make us understand to what class of diseased pulps we are referring.

THE CAUSES OF THE FAILURE OF GOLD AS A FILLING MATERIAL.

BY DR. A. A. BLOUNT, GENEVA, SWITZERLAND.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT COLOGNE.

Ever since the "new departure" sprang into existence it has been a constant study to ascertain why gold had so suddenly become an unsafe material for preserving teeth. Had the profession at large exercised judgment and discrimination in the use of the various preparations of gold, the "new departure" would never have existed, for it is the outgrowth of the indiscriminate use of heavy and extra cohesive foils, and the lack of system in the preparation of cavities. Thousands of teeth have been lost at the hands of men who stand high in the profession, and yet gold must take the blame, and not he who manipulates it. It is not to be wondered at that this outcry against gold should have gained the pro-

portions it has, when we see teeth almost hopelessly decayed, that were once beautifully and elegantly filled. When they left the hands of the operator they were jewels in more senses than one, but alas, how soon the fell destroyer, decay, insinuated itself around the margins of that beautiful work of art, the possessor of which rested in perfect security in the belief that the operation was perfection, until warned by twinges of pain he sought the services of the most skillful dentist, who, upon examination found extensive decay going on silently but surely at the cervical and lateral borders. The dentist is astonished that such beautiful operations from the hands of such eminent men should so soon fail.

Is it to be wondered at that his faith in the preservative qualities of gold should be shaken? He is constrained to believe that some plastic material might have saved those teeth better than gold. Very true, but why should gold be condemned when the operator is at fault, who, placing too much reliance upon his manipulative skill does not stop to reflect, but goes on day by day committing the same error, until, seeing his own failures, he concludes that gold is not the best material after all for preserving teeth. It is thus that the "new departure" has gained proselytes. If those in the profession who have abandoned and condemned the use of gold as a filling material, and even brought chemistry and electricity to substantiate their opinions, had spent as much time in trying to discover the causes of their failures as they did in filling glass tubes with amalgams and kindred materials, they would to-day be saving more teeth with gold than they ever will with plastic fillings.

I shall mention a few of the causes which, in my judgment, produce the greatest number of failures.

1st. *The lack of a proper system in the formation of cavities.*

No preparation of gold can be perfectly adjusted to the walls and borders of a badly formed cavity. The introduction and condensing of gold is a simple and easy operation; any dentist of ordinary manipulative ability can make a good filling in a properly prepared cavity, while on the other hand, no dentist however skillful he may be can make a good filling in an imperfectly prepared one. The system of making retaining pits, so much in vogue, is a dangerous

one, no matter where they may be located, as they are insecure and do not always answer the purpose for which they were intended. One who is in the habit of relying upon them for holding the foundation of his filling, is too apt to neglect more important considerations in the formation of the cavity. Aside from the danger of encroaching upon the pulp on the one hand, and drilling through to the gum on the other, the gold is apt to move with every blow of the mallet, perhaps not perceptibly, but sufficiently to destroy the perfection of the filling.

Another frequent cause of failure is: *using heavy foil where it should not be used, i. e., within the body of the filling and against the walls and borders.* No doubt many of us have seen teeth filled with No. 120, and even heavier rolled gold, driven into small cavities in incisors and bicuspid with a mallet weighing from eight to ten ounces, while the operator cries out to his assistant, with every stroke of the mallet, "harder! harder!!"

It would be just as consistent to place the patient's head under a "drop," put a solid piece of gold over the cavity, let the drop come down, and thus fill the tooth at one blow.

Extra cohesive gold in too large pieces, either in cylinders or pellets—crowded into the cavity without any system—with the one idea of filling up fast.

Imperfect adaptation of the gold to the walls of the cavity. The heavy and cohesive foil becoming hard by manipulation, folds upon itself, leaving pits through which the buccal fluids penetrate, often to the very bottom of the cavity, and in a short time a dark line becomes apparent, and disintegration and decay of the enamel and dentine follow.

Injudicious use of the mallet, is also one of the causes of our failures; too much and too hard malleting with serrated instruments, especially over the centre of large fillings, causes the gold to draw away from the borders, no matter how carefully it might have been adjusted in the beginning. Decay as a matter of course supervenes.

The lack of proper instruments to condense the gold against the borders. However carefully a serrated instrument may be used, it

will more or less mar the borders of the cavity. The sharp serrations coming in contact with the edges of enamel must inevitably leave their mark, and into these little pits the hard or heavy gold cannot be forced. In the process of finishing, small particles of gold fill up these pits, hiding from the operator the imperfections, and he is surprised to see the filling in a short time present such early signs of failure.

If a careful preparation of cavities and a judicious selection of various preparations of gold, with intelligent and skillful manipulation of that which in our judgment is best suited for each individual cavity can in any degree serve to lessen our failures, we should leave no method untried to make our operations more perfect, and thus wipe out the "new departure" from our midst, or confide it to the tender mercies of charlatans. In my judgment, in order to correct some of the failures mentioned above, we should adopt some systematic method of preparing cavities and of introducing and condensing the gold, follow up that system persistently until we become so expert in it that filling teeth shall be a work of pleasure rather than of labor.

In order to obtain the best results, that system must be based upon scientific mechanical principles. I consider the formation of the cavity by far the most important part of the operation in filling, and shall at some future meeting, if the Society desires, classify and describe my method of preparing cavities, at the same time presenting drawings of each class.

NOTES ON OPERATIVE DENTISTRY AND ITS ADVANCEMENT.

BY GEORGE H. PERINE, NEW YORK.

Operative dentistry consists, so to speak, of particles, which when combined constitute an important and extensive branch of the science. Of late years the interest in the study of dental pathology has greatly increased, which certainly speaks well for the dental practitioner, for without pathological knowledge his efforts are

at the best but random shots, the majority of which fall wide of the mark.

That the operation of filling teeth is one of very ancient origin is a fact which has been clearly demonstrated. For a time but little attention was paid by practitioners to the preservation of teeth which could not be filled without treatment. When the dentine was sensitive or the pulp exposed, they were either left to final decay or at once extracted. Through the efforts, however, of such men as Parmly, Wescott, and others, these erroneous ideas were eventually dispelled.

In 1846 Dr. Wm. H. Dwinelle presented a valuable paper on the preparation of teeth for filling, to the American Society of Dental Surgeons, and in 1850 he introduced transfer paper for articulating gold fillings, artificial crowns and artificial teeth, which is called articulating paper, and which for the purpose for which it is intended is invaluable.

In 1859, Dr. J. Taft published a valuable work, entitled "A Practical Treatise on Operative Dentistry," which was, and is still considered an able text book. At the time of its appearance it was the most elaborate treatise on the subject which had ever been printed. During the present year a work entitled "Notes on Operative Dentistry," from the pen of Dr. Marshall H. Webb, has been published, which is worthy of the most careful study.

At the present time, when the filling of teeth is more universally practiced than ever before, the treatment of such teeth is undertaken with a recognition of their pathological condition, and the operations are made to conform to the indications thus observed.

The treatment of deciduous teeth is also receiving its due share of attention. These were formerly regarded with much indifference, and little or no attention was bestowed upon them. It has been found, however, that their preservation is a matter of much importance, exerting great influence upon the permanent teeth, and they should be treated in a similar manner, except that for filling, plastic substances are employed.

It is a question who first introduced the practice of filling the roots of teeth. Dr. B. T. Longbotham recommended it as early as

1801, but it is believed by many that the credit is due to Dr. F. H. Badger, whom Dr. John S. Clarke, in 1843, declared to be the first to make nerve fillings, and the first also to introduce cylinder fillings. It is also claimed for Dr. James Taylor, that he was the originator of the latter method, but to Dr. Clarke, however, is due the credit at least of improving the method of making and introducing the cylinders.

At a meeting of the New York Dental Association in 1861, during a discussion upon the method of filling nerve cavities, a member stated that in preparing a root for the engrafting of an artificial crown, he discovered that the nerve cavity was perfectly filled and in good condition. Upon inquiry he was informed that the tooth had been filled by Dr. Hudson, nearly thirty years before, and that the nerve had been removed by a heated instrument. From this statement it would appear that the filling of the nerve cavity was an operation practiced when the specialty was exceedingly young in this country, and that some of the practitioners of half a century ago possessed in some branches of the profession a knowledge equal to that of the present day. The profound study and thoroughness which marked the efforts of some of the pioneers of the science, is worthy of general imitation, even in this advanced age.

Before speaking of the various materials employed for filling teeth, it will perhaps be as well for us to refer to some of the agents used in drying, and keeping moisture from the cavity previous to, and during the introduction of the filling.

Dr. A. Severance is said to have been the first to introduce prepared cotton for drying cavities. The hot air blow-pipe was suggested for this purpose by Dr. Geo. Watt, in 1855, who, with Dr. J. Taft, made the first hot air blow-pipe used. About this time Dr. A. M. Leslie suggested the adoption of asbestos bulbs of various sizes. Bibulous paper and spunk were also used, and many other plans and materials have been resorted to for this purpose by practitioners. Dr. John B. Rich claims to have used the gold plate coffer dam as early as 1836. In 1850 Dr. Dwinelle recommended the wax coffer dam, and Dr. A. Blakesley about the same period suggested

the use of oil silk in conjunction with napkins. D. Geo. A. Mills favored the employment of a plaster coffer dam built up about the tooth, but to Dr. S. C. Barnum the specialty is more greatly indebted for the introduction, in 1864, of the rubber dam, which was at once adopted by practitioners generally. It has proved simple, as it is in its character one of the most valuable contributions to the advancement of operative dentistry.

The materials used for fillings are numerous. Gold, as in past ages, constitutes to-day the favorite essential. Gold foil for dental employment was, we believe, first manufactured in this country by Mr. M. Bull, in 1872. Chas. Abbey soon after joined him, and together they opened an establishment in Philadelphia. There are at this time several manufacturers of dentists' foil in the United States. Practitioners differ in their opinions regarding the most desirable properties of the gold employed. Some prefer cohesive, while non-adhesive is held in high esteem by others; and the same difference of opinion as to weight exists, some preferring heavy and others light foils, made into rope, ribbon, or pellet form. Cylinders and blocks are now furnished by the manufacturers ready for use.

(To be concluded in December Number.)

Reports of Society Meetings.

REPORT OF THE MEETING OF THE PENNSYLVANIA STATE DENTAL SOCIETY, HELD AT CRESSON, JULY 31, AND AUGUST 1 AND 2, 1883.

(Concluded from the October Number.)

SECOND DAY, AUGUST 1ST. MORNING SESSION.

Dr. Darby, Chairman of the committee to prepare resolutions on death of Dr. Marshall H. Webb, presented a report, which was accepted, and ordered to be entered upon the minutes.

Dr. Magill presented the report of the committee on "Enforcement of Dental Law." They had prosecuted one case to a final issue.

The verdict was against the defendant, who afterwards attended a dental college and graduated.

The committee desired to have the sense of the meeting as to whether the term of pupilage should be counted as "time of practice." A case had occurred where the attention of the committee had been called to a dentist who was violating the law. The committee notified him, and he replied that the law did not apply to him, as he was still a student. Several years passed, and he then claimed that he had been in "practice" all that time and was exempted. The law does not say how long a man may be a student. Now, can a dentist continue to practice year after year and escape the penalty of the law by claiming to be a student as long as it suits his purpose, and then turn round and claim all that time as having been spent in practice? The committee had found this a knotty question, and desired light upon it.

Dr. Jack moved that the period of pupilage should *not* be considered as time spent in practice. After a discussion, the motion was passed unanimously.

Dr. Jack, after explaining that the State Examining Board was appointed to meet the case of those who were in practice before the dental law was passed, and that their certificate was not intended in any sense to take the place of a regular diploma, and that complaint had been made that their certificate was too easily obtained, moved that a committee be appointed by the President to confer with the Examining Board, to devise if need be, rules and regulations to make the certificate of qualification more difficult of attainment. Passed, and committee appointed.

Dr. Jack, after reading the clause in the constitution referring to patents, (Art. 7, Sec. 2) said he thought the time had come for the profession to take a firm stand against all secret preparations. He did not desire to deny to any one the just reward of their labor; no one could object to a dentist manufacturing and selling a preparation or a filling material, or a remedy he may have invented; but he thought we should take the same stand the medical profession has, and insist that the formula and the process shall first be published. These secret preparations were a hindrance to our profes-

sional progress, and in the end a serious injury. A dentist may, after a great deal of research and experiment, devise an amalgam far better than any that has preceded it. If the formula and process were published, another knowing how it was produced may suggest a little change and make it still better. When it is kept a close secret it compels all investigators in that field to go over the same ground, and to try the same fruitless experiments before any advance can be made. He considered them more objectionable than patents; the patent simply reserved the right of control over the thing patented, but prevented no one from taking up the idea and improving it, but keeping the idea secret does.

He then offered resolutions disqualifying any one from becoming or remaining a member of the society who had a pecuniary interest in any secret stopping, or therapeutic agent, and denying representation to any college, if any teacher connected with it had such an interest in a secret preparation.

Dr. Guilford did not think it right, if one teacher in a college violated the rules of the society to punish all the others for his fault; he was fully in accord with the first part of the resolutions, but thought the latter part unjust.

Dr. Magill said that a law could only be enforced so far as it met public sentiment. He thought the constitution went as far as the sentiment of the society called for. A man had a right, a personal right to the result of his own labor, that should not be interfered with.

After a long discussion the resolutions were passed.

Dr. Guilford read a paper upon "Properties of Gold Foil." He spoke at some length of the properties of gold, dwelling especially upon "cohesion," and the difference between "cohesive" and "plain" gold. He took the ground that naturally, gold foil was cohesive, and supposed that it was passed through some process to destroy this property when plain or non-cohesive gold was desired. Assisted by a chemical expert, he had spent some time endeavoring to discover what the physical difference between the two forms of gold was, but without any satisfactory result. With the most delicate chemical tests he was not able to find even a trace

of any of the various agents said to be used in preparing non-cohesive gold. He suggested that the cohesion of gold might be caused by the inter-locking of the crystals on its surface, and that the increased cohesion caused by annealing might be due to the heat, lifting up and rendering these crystals more prominent. While gold could be crystalized, he had never seen any sign of crystalization on the foil, and had never heard of any one who had, yet he could conceive of the crystals being so minute, or so situated, that the best microscope would not define them. He referred to a paper published by Dr. Black a few years ago, in which were detailed a series of experiments that seemed to show that gold foil was liable to have a thin film of various gases on the surface, which destroyed to a greater or less extent its cohesion. Dr. Black had found that, except sulphur and phosphorus, those most commonly met with could be driven off by heat. He also found that hydrogen gas had a strong affinity for gold, and that gold coated with it was protected from other and more injurious gases. He therefore suggested keeping a little ammonia in the gold drawer. Then the gold would be covered with a film of hydrogen that would protect it from contact of other gases, and when annealed, the hydrogen being readily expelled by heat, it left the gold in good working condition. Dr. Guilford thought the experiments of Dr. Black offered the best explanation of the difference noticed in the working properties of gold foil. He briefly noticed the peculiarities of full, semi, and non-cohesive gold foil, and hoped that future investigations might enable us to find on what the cohesiveness of gold really depends.

SECOND DAY—AUGUST 1st—AFTERNOON SESSION.

After receiving the report of the State Examining Board, and of several committees, the society adjourned to attend the clinics.

CLINICS.

Dr. W. Storer How illustrated his method of attaching artificial crowns.

Dr. W. G. A. Bonwill exhibited his dental engine and mechanical mallet.

Dr. C. H. Land, of Detroit, Mich., exhibited a new form of air chamber. He contends that the air chamber should cover at least four-fifths of the entire lingual surface of the palatine arch, and certain proportions of the alveolar. He recommends trimming the plaster cast on the outer portion of the alveolar ridge, especially any projecting points, so as to make it a comparatively level surface, his idea and design being to let the pressure of the plates bear directly on the outer portion of the ridge. His air chamber is of the usual shape, but made much thinner where it bears upon the center of the palate. When the plate is placed in the mouth it rests entirely on those portions of the ridge cut from the cast. This undue pressure is expected to cause absorption, so that in a short time a perfect fit is obtained. In the mean time, until the plate touches the roof of the mouth, he recommends wearing a moist piece of cotton batting to fill up the space.

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EVENING SESSION—SECOND DAY—AUGUST 1.

The first business was the election of officers, which resulted as follows :

President—S. H. Guilford, Philadelphia.

First Vice President—George Elliott, Meadville.

Second Vice President—James Truman, Philadelphia.

Recording Secretary—E. P. Kremer, Lebanon.

Assistant Secretary—Wm. B. Miller, Altoona.

Corresponding Secretary—W. H. Fundenberg, Pittsburgh.

Treasurer—G. W. Klump, Williamsport.

Board of Censors—Louis Jack, Wm. H. Trueman, W. E. Magill, C. S. Beck, J. Martin.

Drs. Magill and Gerhart were re-elected members of the State Examining Board.

Wilkesbarre was selected for the next meeting, commencing the last Tuesday in July, 1884.

The committee appointed to confer with the Examining Board presented, through their chairman, Dr. Jack, a report giving a brief history of the work of the Examining Board. Since it was estab-

lished in 1876, two hundred and seventeen applicants for a certificate of qualification have appeared before them ; of this number twelve have been rejected. Some of these have afterwards attended a dental college and have graduated, and several have passed an examination the following year. The committee find that the examinations have been as rigid as those usually held at the colleges, and have no reason to think that any have received certificates who were not properly qualified. They desired at the same time to say most emphatically, that they do not consider the instruction of a preceptor equal to the systematic teaching of a college course in preparing a student for practice, and hope the time will soon come when all who desire to enter the profession will avail themselves of its advantages.

THIRD DAY--MORNING SESSION.

A discussion on Dr. Guilford's paper occupied some time, but nothing of special interest was brought out.

Dr. C. S. Beck moved that nothing in the shape of a clinic be brought before the society next year, unless it is entirely new. Adopted.

Dr. John A. Klump, of Delaware, read a paper on "The effect of Malaria Poisoning on the Dental Pulp." Practicing in a malarial district he had frequent opportunity of observing the effect of malarial poisoning upon the dental pulp. At first he was annoyed by patients coming to him suffering with severe tooth-ache, for which he could find no cause, and often met with cases where a number of sound teeth had been extracted in the hope of obtaining relief. This led him to closely study the matter, and by degrees he came to the conclusion that malarial poisoning had much to do with it. The next step was to try what effect the administration of anti-malarial remedies might have, and as these invariably gave relief, he felt safe in assigning malarial poisoning as the real cause of the trouble. In tracing its action he found malarial poison disturbed the circulation, and favored congestion and inflammation. When we consider the position of the pulp, enclosed in dense bony walls, we can readily see why it is so sensitive to any disturbance

of its normal circulation or blood supply. As a result of these conditions, we first have inflammation and its accompanying odontalgia; this, if not relieved, is soon followed by strangulation at the apical foramina, owing to congestion, and death of the pulp follows. He had no doubt this was the history of nearly all the dead pulps he found in sound teeth, and this also explained why, in teeth he had filled, he had found the pulps dead shortly after the patient had recovered from a malarial attack, and why he had so often failed in capping exposed pulps, although for a year or two they promised well. In these cases the previous injury, lowering the vitality of the teeth, made them more susceptible to injury, but why, when all the teeth were sound, one or two pulps should die and the rest escape, he did not know. Physicians practicing in his neighborhood have noticed that often the first symptom of malarial poison is dental irritation. This may occur sufficiently in advance, so that prompt administration of quinine will abort the attack. Whenever he meets with odontalgia of a neuralgic character for which he finds no visible cause, he prescribes three or four grains of quinine every three or four hours, until thirty grains have been taken, his object being to bring the patient under its influence as rapidly as possible. He finds it necessary to use large doses; probably smaller doses would suffice where malaria was not so prevalent. He also found advantage in using quinine in moderate doses for several days before dental operations, even when the patient is not suffering from malaria. Nerve capping he found very uncertain, especially between June and October. He had written the paper to call attention to the subject, with the desire to know if other dentists practicing in malarial districts have had the same experience.

DISCUSSION.

Dr. C. S. Beck.—Had met with several cases of odontalgia without any visible cause, which he had relieved with quinine, giving some twenty or thirty grains in the course of a day. The patients resided in a malarial district. Dr. Klump is entitled to credit for calling attention to the subject, and the care with which he has studied it.

Dr. W. H. Trueman.—Dr. Klump's paper is excellent and timely. The subject he has chosen is becoming more and more an important one to the dental and medical professions; not alone to those who practice in malarial districts, but to all. "Modern improvements" have introduced malaria into our city homes; it has invaded the parlor, the bed-chamber, the work-shop and office. Attentive readers of medical literature have noticed within the last few years, not only to what an alarming extent malaria in its various forms has become a formidable disease, but that it complicates and aggravates nearly all other diseases. No doubt many cases of tooth trouble for which we see no cause have been due to it, and no doubt some where we do recognize a cause would be relieved by moderate doses of quinine for a few days. He had no doubt in unhealthy districts "heroic" doses were needful, but in his practice he had found from three to six grains a day sufficient, and he often directed its use.

Several gentlemen spoke of having used quinine to relieve odontalgia with advantage, and were pleased that Dr. Klump had made such good use of his opportunities, as shown by the paper presented. Several questioned the propriety of such large doses, except in malarial districts, and thought harm would be done to give it so freely to patients not accustomed to its use, and where the malaria exists in a milder form.

Dr. Magill.—Called attention to the provision of the dental law requiring all dentists in the Commonwealth to register an affidavit in the recorder's office, stating how long they had been in practice, etc., and asked how that affidavit should be worded. After the matter had been talked over it was decided to request the committee on enforcement of dental law to have a proper form of affidavit prepared, and publish the same as soon as convenient. The form adopted is as follows:

County of _____ STATE OF PENNSYLVANIA, } ss.

Personally appeared before me _____ who being duly sworn
according to law deposes and says that he now resides in the _____ of
county of _____ ; that he has been in continuous practice

of dentistry in this Commonwealth for the full term of _____ years last past, as follows: In the _____ of _____ and county of _____ from the month of _____ 18 to the month of _____ 18, and in the _____ of _____ and county of _____ from the month of _____ 18 to the month of _____ 18; and that said term of _____ years is exclusive of the usual period of pupilage or study under instruction.

DEPONENT FURTHER STATES that he makes this statement for record in compliance with the Supplement to the Act of the General Assembly of Pennsylvania passed April 17, A. D. 1876, for the registration of dentists, etc.

Sworn and subscribed before me
this _____ *day of* _____ 18 }

The President elect, Dr. Guilford, after being installed in office, appointed the following committees:

Enforcement of Dental Law—W. E. Magill, J. W. Rhone, J. C. Green.

Dental Legislation—Drs. Litch, Miller, Jack, Robb, and Fundenberg.

Publication Committee—Drs. Magill, Kremer, Ansart, James Truman, Miller.

Executive Committee—C. S. Beck, E. D. Long, C. N. Pierce, G. L. Simpson, E. T. Darby.

The Society then adjourned to meet at Wilkesbarre, July 29, 1884.

REPORT OF THE MEETING OF THE AMERICAN DENTAL
 SOCIETY OF EUROPE, HELD AT COLOGNE,
 GERMANY.

BY DR. W. D. MILLER, OF BERLIN.

The eleventh annual meeting of the American Dental Society of Europe was held at the Grand Hotel Victoria, in Cologne, on the 7th, 8th and 9th of August, 1883.

Dr. N. S. Jenkins, of Dresden, opened the regular work of the session by a serio-comical essay entitled "A Day's Practice." This article gave the methods daily used in practice by one who is recognized as being, as a preserver of teeth, inferior to no one in Europe or America.

Dr. Jenkins' paper will appear in the December number of *THE INDEPENDENT PRACTITIONER*.

Dr. Galbraith, of Dresden, described a series of experiments made with a view to determining the solubility of various cements in liquids, which are known to occur in the human mouth. Equal sized holes were bored in strips of hard wood ; those were filled with different cements, and the strips submerged in various liquids ; it is needless to say that the pyrophosphates, especially those of German manufacture, showed a decided advantage over all other preparations. While the American has long looked upon gold as a perfect filling material, and has directed all his efforts to securing better preparations and better methods of manipulating it, the German has devoted himself with equal zeal to the production of a cement which should be insoluble in the liquids of the human mouth, and to this fact, no doubt, is due the evident superiority of the German cements.

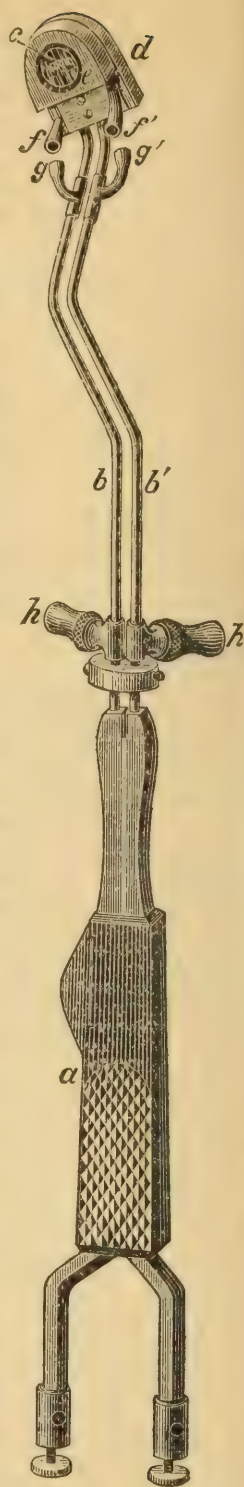
The general experience of the society was to the effect that Poulson's preparations were the best in use ; it was also found that of those present seventeen preferred Poulson, seven Rostaigne, three Frieze, three Worff, two Weston, two Fossiline, and one Eisfelder.

There was a great variety of opinion as to the value and durability of cements, some not allowing them on approximal surfaces more than a year's existence, having found them invariably to give way at the neck of the tooth in a few months ; others looked upon this failure as a result of imperfect manipulation of the material, imperfect exclusion of moisture, too hasty insertion and polishing, etc., etc., and considered a properly inserted cement filling good for two or three years at least.

Dr. Jenkins exhibited an apparatus for illuminating the oral cavity, devised by Dr. Josef Leiter, of Vienna. (See figure.) By means of two insulated copper wires, set in the handle, *a*, and the two metallic tubes *b* and *b'*, a galvanic current is conducted through the platinum spiral *c*. The tubes *b g* and *b' g'* serve also for conducting a stream of water, and when *g* and *g'* are connected with *f* and *f'* by short rubber tubes, a continuous current of fresh water may be conducted through *h, b, g, f, d, f' g', b', h'*, which absorbs the heat produced by the glowing platinum wire beneath the glass plate *c*, thereby preventing the instrument from becoming uncomfortably warm. This apparatus, though somewhat complicated, may be used in the mouth with wonderful effect.

An apparatus of the same character, known as the "Frontal Electric Photophone," was exhibited by Dr. J. W. Crane, of Paris, who gave the following description:—"This ingenious appliance, the invention of the well-known electrician, Monsieur G. Trouve, is a welcome application of the electric lamp in medicine as well as in domestic use. Hitherto it has only been possible to employ the electric lamp on a large scale, by obtaining power from powerful dynamo or magneto-electric machines. Monsieur Trouve has found that this light may be utilized in every household at a comparatively small expense.

Dr. Paul Hélot, chief surgeon of the hospitals of Rouen, and Monsieur Trouve, have solved in a no less satisfactory manner the problem of the electric light in surgery. The apparatus is composed of a Swan lamp, held in a metallic cylinder between a reflector, an objective, and two conducting wires.



This remarkable improvement is very light and small, and is fastened on the forehead like the mirror of the laryngoscopist or of the aurist. The light which it supplies is very intense, but can be modified according to necessity by the addition or suppression of one or more cells in the battery. The full force of six cells on one lamp would be too powerful for the extremely delicate carbons of the lamp.

The rays of light are directed by a slight alteration of the objective, with the greatest facility.

Placed in the axis of vision, the light accompanies the sight of the operator, both sight and light being brought to a focus together, the operator himself having no further anxiety about it.

In case one prefers to employ the lamp without applying it to the forehead, nothing could be more simple than to fasten it on a support, on a table, on the arm of the chair, or upon any piece of furniture whatever.

The supply of power is the pile, saturated with bichromate of potash, invented by M. Trouve.

It can, in this case, be used a great number of hours without being recharged, either continuously or at intervals, as long as required.

This lamp for lighting can be applied in a great number of cases; it may serve to cast light in deeply situated cavities, such as the mouth, the throat, the ears, etc. The gynecologists will frequently find it useful in certain delicate operations demanding much light, but it is above all in diseases of the throat and ears that its use seems preferable to all other apparatus, as the light which it supplies is perfectly white, and does not alter the color of the tissues. Henceforth dentistry will not only demand electric power for the dental engine by means of the pile, but without perceptibly increasing the expense we will have the means of lighting the mouth by the use of the photophone in a way that leaves nothing to be desired. To sum up, the apparatus is a useful discovery, is made with precision by the intelligent constructor, and seems destined to render real service to most medical men."

Dr. Rosenthal of Liege read an article on the "Antiseptic Treatment of the Dental Pulp," giving a resume of Witzel's methods. (See page 585).

DISCUSSION.

Dr. Kellner.—I have for years been making experiments in the antiseptic treatment of the dental pulp, and my experience teaches me that the amputation of exposed pulps is followed in most cases by bad results, as the remaining parts of the pulp die in the course of time, giving rise to inflammation of the periodontium, frequently necessitating the extraction of the tooth. My friend, Dr. Witzel, writes me that he has, even by the utmost care in amputating the pulp, had a number of bad results.

Dr. De Trey.—Those of you who were present at the meeting of our society at Ostende, will perhaps remember a paper which I presented on the “Resection and Cicatrization of the Dental Pulp.” I have made use of the methods advocated in that paper with continued success, having in the course of two years had but one failure. Let us suppose that we have an upper molar whose pulp is exposed at the anterior buccal horn. I immediately apply the rubber dam, as the subsequent operation is thereby very much facilitated, and perfect cleanliness secured, which is absolutely essential to the success of the operation. After clearing the cavity of all rubbish and decayed tissue with instruments particularly constructed for the purpose, I cut a groove around the point of exposure so that the latter is left standing out as a little mound from the bottom of the cavity; then with one stroke of a properly shaped excavator the protruding hill of dentine is removed along with the inflamed portion of the pulp. The cut must be clear and clean, not breaking the dentine or tearing the pulp; it then produces very little pain and the wound heals very rapidly. Any pieces of dentine which may be forced into the tissue of the pulp must be carefully removed. The pulp is allowed to bleed freely, nothing else than tepid water being used to rinse out the cavity, and when the bleeding has thoroughly ceased I absorb the excess of moisture from the surface by means of punk which is free from nitrate of potassium, and fill immediately over the pulp with Worff’s oxychloride of zinc. Some pain occurs as a rule after introducing the filling, which however subsides in from ten to twenty minutes. I avoid the use of all

escharotics and antiseptics before introducing the filling. The delicate pulp tissue must suffer severe injury from such violent agents as pure carbolic acid, creosote, etc., etc., which many dentists are in the habit of using. I allow the oxychloride to remain for a year. I then remove it and insert gold, or whatever other permanent filling material I may see fit. I have invariably found the pulps alive and healthy, and protected by a layer of osteo-dentine. I perform this operation on all classes of patients, and at all seasons of the year. Of course the rapidity of the healing and deposition of osteo-dentine depends somewhat upon the health and temperament of the patient.

Dr. Walker.—I tried this method fifteen years ago; in some cases I had beautiful results, in very many, however, I failed. I attributed this lack of success to the influence of the atmosphere in London. In the same way surgical operations in large cities are not as successful as in small ones.

Dr. De Trey.—I have not found that the atmosphere made any difference as to the success of the operation. There was no rubber dam at the time Dr. Walker performed this operation, and I do not believe that it can be properly done without it.

Dr. Sachs.—Do you perform this operation for patients who are living at a distance; and who must leave the next day?

Dr. De Trey.—Yes. I never hesitate to resect and cap a pulp, even if the patient is leaving half an hour afterwards.

Dr. Sachs.—I divide exposed pulps into three classes: 1st, those exposed by accident; 2d, those exposed by caries, not inflamed; 3d, those exposed by caries, and inflamed. In the third class I never hesitate to use arsenic. I have tried amputating the pulp and in forty per cent have had bad results, while with the proper use of arsenious acid we may reduce the failures to one per cent. I use cotton and creosote, or carbolic acid for filling the roots, a method which has given me much greater satisfaction than either gutta percha or oxychloride of zinc.

Dr. De Trey.—I never use arsenic in my practice; when I find it absolutely necessary to devitalize a pulp I prefer pure creosote; with a fine broach I can work this up into the canals around the

nerve, and at the first sitting frequently remove the greater portion, with very little pain to the patient.

Dr. Patton.—I use arsenic and find even then that two or three applications may be necessary before the pulp is entirely devitalized. Dr. De Trey's patients must be different from those in Cologne.

Dr. Cunningham.—I have tried Dr. De Trey's method, but have not had equal success, though Dr. De Trey is undoubtedly right in his assertion that many pulps are killed by over-treatment. In some cases I do not hesitate to remove the softened dentine over the pulp, and expose and resect a portion of it with the engine burr. I believe with Dr. Walker that bad drainage has a very ill effect upon the treatment of dental pulps.

Dr. Patton.—I object to the term resection; it is at best only scratching, and when performed with the burr it is still worse. I should like to see some one make a clean cut of a dental pulp with an engine burr.

Dr. Jenkins.—There is no doubt that various results are obtained from the same method of treatment by different operators, and with different patients.

Dr. De Trey's wonderfully delicate manipulation is one to which but few dentists are able to attain. I believe too, that nationality makes a very great difference in the susceptibility of the dental pulp to conservative treatment. With patients of Slavonic origin we may attempt operations with a fair chance of success, which would be sure failures with patients of Teutonic blood. For many years it was my custom to attempt the preservation of the vitality of nearly all pulps which came under my care, and many cases which I believed to have succeeded turned out in later years to be anything but fortunate; in other instances the apparent success of the treatment resulted only from a mummification of the pulp under a filling of oxychloride of zinc. I now never attempt, for Saxons, to cap anything but a freshly exposed pulp, and even then there is no certainty that the operation will succeed.

Dr. Cunningham, of Cambridge, England, read an article entitled "A System of Dental Notation; being a Code of Symbols for

the Use of Dentists in recording Surgery Work." The design of the paper was to suggest and advocate a system of notation which should be adapted to universal use, and by means of which members of the profession could, by means of a few symbols, communicate to each other the operations which had been performed in any mouth, and the condition of the teeth at the time of performing the operations. A committee of three was appointed to report on this subject at the next annual meeting.

Dr. Miller, of Berlin, read an article of some length on the "Etiology of Dental Caries." This paper will appear in the INDEPENDENT PRACTITIONER.

The society accepted Dr. Miller's views of dental caries without a dissenting voice.

The Secretary read a paper by Dr. Blount, of Geneva, on "The Causes of the Failure of Gold as a Filling Material." (See page 588).

DISCUSSION.

Dr. De Trey.—I believe that heavy gold makes a better surface than any other kind. I use No. 240 for this purpose; it must of course be used judiciously, and be packed with smooth points.

Dr. Elliott.—I look upon the filling of teeth as the most important part of dentistry, and any improvements in the methods of inserting fillings, in instruments for filling, or in any filling materials, should be considered as of the greatest value.

It was formerly thought that solidity was no necessary element in a good filling; that a filling might be so soft as to be easily penetrated by a fine excavator, and still preserve the tooth for an indefinite number of years; that a filling could be as soft as cork and still be efficient. We now consider uniform density throughout the filling as one of the most important features of a gold plug. It must moreover be solid from the foundation, for unless this precaution is taken, and every piece thoroughly condensed before the following one is inserted, it will not be possible by any amount of malleting on the surface of the filling to produce a good result. The character of the operation which we perform must also be largely determined by the condition and structure of the tooth.

There is only one way left for us, and that is to be eclectic in our practice. I now use a combination of tin and gold in nearly one-third of all the cavities that I fill. My use of hard gold is confined to fairly assessible cavities, and I would for my own part rather have the distal surfaces of bicuspid and molars filled with amalgam than with cohesive gold.

Dr. Galbraith.—I have not been long in practice, and yet I have seen enough to convince me that hard gold is by no means necessary for beautiful contour filling. Some of the finest and most durable work of this nature that I have ever seen has been done with soft gold, and with combinations of tin and gold.

Dr. Walker.—In the London Dental Hospital we have previously used cohesive gold exclusively; we now use both cohesive and non-cohesive, and we find that students can make fillings of non-cohesive gold in from two to three hours, which require from five to six with the electric mallet. I am convinced by observations in the hospital as well as in my own practice, that it is not justifiable to restrict ourselves to the use of cohesive gold alone. I frequently line cavities with soft gold and complete with hard, always preparing my gold on the day of use.

Dr. Elliott.—I am Examiner in the London Dental Hospital with which Dr. Walker is connected, and I have been surprised and pleased to observe the excellence of the operations performed by the students. This skill in operating is accompanied, as you all know, by a most thorough theoretical knowledge. I have myself made different medical examinations. The easiest of these was that for M. D., at the University of New York. My subsequent examination for D. D. S. at the Philadelphia Dental College amounted to absolutely nothing, and I am convinced that the English system of dental education, combining as it does thoroughness both in theory and practice, must in the long run triumph over the American system.

Dr. Cunningham.—Americans in Europe have fallen into disrepute with some of their colleagues in America, because they are said to have become eclectic in their practice, or in other words

to have retrograded. This was the highest compliment that could have been paid them, although not intended.

A great deal has been said about noble and base materials, but we know no base materials in dentistry. The material becomes base only when it is put to improper use, and I have certainly seen most debasing effects from the injudicious use of gold in places where material which the operator would have scorned to use might have effected the salvation of the tooth. The views of many advocates of hard gold are narrow and confined, and designed to do great harm.

No dentist of an unbiased mind should allow himself to be led to such unreasonable extremes. No more can I adopt the creed of those advocates of the New Departure who would exclude gold entirely from their practice. I need gold, amalgam, gutta percha, cement, etc., etc., nor could I for a moment think of excluding one of them without doing great injustice to myself and to my patients.

Dr. Jenkins.—I have great compassion for any man, and for any man's patients who is confined to any one particular method of practice. We are dentists, not for the purpose of running a hobby, but to render the greatest possible service to our patients, and that we can only do by availing ourselves of every possible means at hand.

As for the New Departurists, their practice is in general good, but the principles upon which it was originally based were long ago proven, by a member of our society, to be utterly groundless. We are not new departurists, nor hard-goldists, nor amalgamists, but *dentists*. As far as the beauty of the operation is concerned, it is absolutely impossible after years to tell which are the fillings made of soft foil, which of hard foil, and which of combined foil.

Dr. Bishop.—I was at first very much prejudiced against amalgam. I then used soft gold, and have fillings thirty-five years old still in perfect condition. When hard gold was introduced I advocated it zealously for a short time, but found out its weak points before I had gone far enough to do any very great damage.

I now begin nearly all fillings with soft gold. I do not hesitate to use amalgam in large cavities difficult of access.

(To be continued.)

NEW ENGLAND DENTAL SOCIETY—FIRST ANNUAL MEETING AT
PROVIDENCE, RHODE ISLAND.

The New England Dental Society (formerly the Merrimac Valley Dental Society), is the largest and oldest dental society in New England, having members from all sections of the New England States. It meets annually in different localities, and held its first annual meeting under its new organization, at Franklin Lyceum Hall, on Thursday and Friday, October 4 and 5, 1883. The following were the officers of the association:

President—Dr. Thos. Fillebrown, Portland, Me.; Vice Presidents—Dr. Wm. Barker, Providence; Dr. James Lewis, Burlington, Vt.; Secretary—Dr. A. M. Dudley, Salem, Mass.; Treasurer—Dr. G. A. Gerry, Lowell, Mass.; Librarian—Dr. G. F. Waters, Boston. There is also an Executive Committee of five.

There was a large number of members and visitors in attendance, and the discussions were earnest, instructive and enthusiastic. The principal interest of the meeting centered in the address of Prof. Garretson of Philadelphia, a sketch of which is appended. He did not give a clinic as was expected, because no patients presented themselves. He did not read a formal paper, but spoke for some time upon the subject of dentition. He said:

In all methods of instruction the teacher should endeavor to make the subject-matter as plain as possible, and to this end all unnecessary technical terms should be eliminated. We find that any subject, no matter how intricate and complex it may at first sight appear, by careful study and familiar observation may be made very simple and easy to be understood. If the assertion should be made that each individual possessed a jaw, it would not be questioned; furthermore it is conceded that this jaw goes through a process of growth; that there was a time when it was only half the size that it presents at present, and a time further back when only half of that size, and so on until we come to the time when it had no existence whatever. So with the dentinal germ which we find perfected in the adult; there must have been a time when it had a beginning, and this we may call the primitive dental groove.

The same is true of the development of the tooth perfected in the adult ; it must have had a very simple beginning, and advanced through the different stages to perfection. Let us understand at the outset that the tooth is not a dermoid tissue; it is *sui generis* ; furthermore, the alveolar process is not a portion of the jaw; it is an entirely separate structure. Now, taking the jaw proper and representing it by a broad line, we discover upon it a little something which we designate as the tooth germ, and conclude that it will develop into a tooth structure. The jaw is covered over its surface with a mucous membrane, which is elastic, and as this germ develops it raises the mucous membrane along with it, until finally we have the germ enlarged to the size and shape of the future tooth, constituting the pulp, still covered with this mucous membrane. This membrane we will call the *tunica propria*, and it is separated from the dental pulp only by a lubricating surface. As we know that the pulp is much larger in young teeth than in those that are older, so we also know that in the germ the pulp occupies all the space which is reserved for the dentine. This begins to shrink away from the tunica propria, forming the dentine in a manner which we will not now stop to explain.

At the same time that this germ is enlarging and developing, other processes are going on around it. The tooth when erupted will need firm support, and so the bony process begins to form around this germ, still beneath the mucous membrane. As it gradually increases in height it raises up the mucous membrane in the same manner that the germ is doing, but so closely does this membrane hug the germ that it is not pulled away from it, but is doubled upon it, and as we called the first membrane the *tunica propria*, we will call this the *tunica reflexa*. Now we see the manner in which the enamel is formed ; the space between these two membranes, the tunica propria and tunica reflexa, is filled with a substance which, when operated upon by the forces of life, is brought to a high state of inflammation. The dentine is a sub-dermoid structure, but as the cells are extended through the tunica propria they are modified to the cylindrical rods of the enamel. The for-

mation of the cermentrum is essentially the same, except that as it is to be covered by a persistent membrane it is modified in structure, it being nourished on one side by the tunica propria, and on the other by the tunica reflexa.

Thus it is that the nourishment of the tooth is not entirely dependent upon the pulp; nay, more than this; the pulp and pericementum may both be dead, and still the tooth retain sufficient vitality to remain in the system without bad effect. But we must remember that while the periodontal membrane is one of double supply, it is not a double membrane.

Dr. Charles T. Terry, an American dentist residing in Milan, Italy, was introduced, and by his desire the Secretary read a paper, of which the following are the salient points: The writer had supposed American teeth to be a little the worst on earth; but he had found the people of Italy, and particularly of Switzerland, to possess teeth far worse than our own as a whole. He was told by intelligent people of these countries that the condition of the teeth was owing to the air and water, but examination of the teeth of animals native to these countries disproved this theory utterly. Two extremes of diet operate disastrously upon teeth; the very rich, and very poor and insufficient. The peasantry of Zurich drank much sour wine (like vinegar). This takes the phosphate of lime from the system and ruins the teeth. Floating the food into the stomach is the worst possible thing to do. In certain parts of Switzerland the teeth are so soft and crumbly that it is impossible to build upon them. In fact, they are the worst teeth in the world, though on the Mediterranean they are nearly as bad. As lemon culture advances in Italy the children eat the fruit and the acid ruins their teeth, owing to their eating too little food to keep the vital elements properly nourished. In San Remo and Zurich the writer saw not a set of actually sound teeth. Overwork, nervous excitement, &c., are claimed as causing decay in teeth; yet the poorer classes already mentioned never overwork nor worry, and their teeth are in a very bad condition. Swiss dentists he had found, as a class, to be very intelligent.

Boston was decided upon as the place for the next annual meeting. Officers for the ensuing year were elected as follows :

President—Dr. William Barker.

First Vice-President—Dr. James Lewis, Burlington, Vt.

Second Vice-President—Dr. J. B. Coolidge, Boston.

Secretary—Dr. A. M. Dudley, Salem.

Treasurer—Dr. G. A. Gerry, Lowell.

Librarian and Microscopist—Dr. G. F. Waters, Boston.

Executive Committee—Drs. D. M. Clapp, Boston; T. Fillebrown, Portland; F. Searle, Springfield; S. G. Stearns, Lynn; R. R. Andrews, Cambridge.

Correspondence.

GENEVA, SWITZERLAND,

Sept. 29th, 1883.

Editor Ind. Prac.:

It is somewhat difficult in a quiet place like our city of Geneva, to find much of interest to write about, but it is a pleasant place for over-traveled wanderers to obtain the rest and repose so much needed, at times, during their journeyings. It seems but a short time since you yourself, weary and depressed, came to Geneva for a few days quiet, and yet it was two years ago; one cannot realize the flight of time.

I have not forgotten our quiet dinners at *Juges', en l'île*, where we sat in the little balcony that juts out over the brawling Rhone, whose waters, so deeply blue, have but just parted from those of Geneva Lake, and where at the same time we discussed our *Truite de rivière*, our *Chambertin*, and our far-away American friends.

Not long since, having contracted what the natives here call the "Grip," *i.e.*, a very severe form of influenza, I went to Vevey, at the head of our lake, for a few days change of air. While there my friend, Dr. De Trey, a Swiss gentleman, a graduate of one of the

Philadelphia dental schools, and one of the finest operators on the continent, was kind enough to show me his method of performing the operation for "resection of the dental pulp." As I have seen no publication of it, I will briefly state what I saw.

The tooth was a second bicuspid; cavity on the posterior approximal surface, a small opening the size of a pin's head into the pulp chamber. The doctor excavated thoroughly, not however touching any portion of the dentine covering the pulp, which stood up in the center like a little mound. With a sharp, thin bladed instrument prepared by himself for these operations, with one stroke he removed that portion of the dentine, together with the portion of the pulp covered by it. After allowing the blood vessels to empty themselves pretty thoroughly, he applied chloride of sodium for a few moments to draw out the remaining blood, and to contract the vessels, washed well with tepid water, dried the cavity thoroughly, and filled immediately with oxy-chloride of zinc, mixed to the consistency of putty. There was but little pain during or after the operation. The doctor does this almost daily. In every case presented to him, in which he may reasonably expect the pulp to die under a gold filling, he prefers resection, knowing that he leaves a healthy wound, and the probability of a rapid cicatrization.

We have a dental school, established and supported by the State, in our city. It has been in operation now about three years. In my next letter I will give you some account of this institution, so that your readers may compare it with our schools at home. A great many Americans have visited in Switzerland this summer, more than for many years past. I have had the pleasure of seeing quite a number of them, recommended to me by their dentist at home, for which courtesy I desire to thank my professional brethren.

A number of prominent dentists from the States have also been here. I had the pleasure of a call from our friend L. D. Sheppard, of Boston. He is looking better than he did two years ago, and still retains a lively recollection of that meeting at Wiesbaden. Speaking of our society, where can you find one that can boast of such a member as our young friend Dr. Miller, of Berlin. There is an example for the rising young men of our profession to follow; but

let me tell them how he passes the time unoccupied by his professional duties. He rises at five o'clock in the morning, goes to his studies at the chemical laboratory, where he works until nine, when his professional labor begins, which lasts until four, with one hour intermission for lunch. At four o'clock he is off again to his studies until sometimes, midnight, forgetting the "whole world and the rest of mankind."

That is the way such men are made ; they must study, work, investigate. No matter how much talent a young man may possess, if he does not cultivate it, it will bear no fruits. The secret of the success of men like Miller is a simple one. It is work, work, work.

A. A. BLOUNT.

667 FIFTH AVENUE, }
NEW YORK, Sept. 22, 1883. }

Dear Mr. Editor :

The INDEPENDENT PRACTITIONER is before me. It has the exquisite flavor of independence about it, and meets with my approval. I like the editorials, the interesting reports of society doings in New Jersey, the kindly notice of my long-time pets, white court plaster and plastic fillings under gold, the aphorism of a perfect gold filling being easier in accomplishment than a good amalgam one, the —, I like so many things in the three numbers which have come to hand, that were I to mention a tithe of them the brief limits prescribed to me by the Car(r)man of your association would be exceeded, and I shall "draw the line" now at a "misconception," mentioned by the author of "A prize essay on deciduous extraction." The gestation is a healthful one, but his diagnosis of the case is certainly faulty. I conclude this paper with a financial addendum by way of setting a good example to others, and showing a slight appreciation of your excellent labors. Enclosed please find my check in payment of one year's subscription to your journal.

Very truly yours,

J. W. CLOWES, D. D. S.

Editorial.

THE PRONE POSITION FOR THE ADMINISTRATION OF
ANÆSTHETICS.

It is well known that an erect position of the patient adds materially to the dangers attending the administration of chloroform, ether, etc., but it has been thought a necessity in dental practice. Ordinary operating chairs are not intended for a recumbent attitude, and very few of the practicing dentists who use anæsthetics largely are provided with any other convenience. Yet any one is criminally negligent who does not secure every safeguard against danger in such a grave matter as the administration of an anæsthetic.

The erect position is not only dangerous because of obstructions to the free flow of the blood column, but it adds the peril of the lodgment of foreign bodies in the trachea. In the extraction of teeth they are apt, in the hurry of the operation, to slip from the forceps, and are liable to drop into the pharynx, whence their dislodgement is sometimes difficult. Pieces of broken teeth, mouth props, and clots of blood occasionally are sources of danger, and instances are on record where they have caused the death of the patient. If this attitude was an absolute necessity there would be a better excuse in case of such an accident. But we have found that a prone position offers many advantages for the performance of oral surgery, while it simplifies the administration of the anæsthetic.

An operating *table* is easily prepared by taking the frame-work of an ordinary narrow cot bedstead, and stretching the canvas tightly over it. A canvas pillow should be provided for use during the administration of the agent, and straps to hold the arms and body are easily attached beneath it, for use if the patient becomes violent. They need not be in sight, or be brought into use unless a necessity for their employment arises. Such a table should be placed before a window in an unused room, or it may even be set in the laboratory. When a patient is to be anæsthetized, place him

or her upon it and proceed with the administration. When this is accomplished, remove the pillow and perform the operation. If teeth are to be extracted the head should be turned to one side or the other, as convenience demands, so that the blood and any extracted teeth or broken pieces will fall to the corner of the mouth, whence they are easily removed. If right inferior teeth are to be removed, and the operator is standing upon the right side of the patient, let him quickly turn the head from him until it rests upon the left cheek, then bending across the body the teeth are presented in a very favorable position for removal. If the left superior jaw is to be operated upon, the position of the head of the patient should be reversed. For inferior teeth upon the left side, a convenient position for the operator is at the head of the patient, who is lying upon the left side. In such position the blood flows easily and readily from the mouth, and the strangling and choking so common in patients in a sitting posture will not be observed.

We have used this position for some time, but our attention has been again called to its advisability by the perusal of a pamphlet by Prof. Tiffany, of the University of Maryland, who recommends it in cases of tracheotomy, and the removal of pharyngeal tumors. In the removal of considerable portions of the upper jaw it has sometimes been found necessary to perform tracheotomy on account of the accumulation of blood, but by the use of the prone position this will be unnecessary, as the blood readily flows from the mouth. Prof. Tiffany recommends that the head should be slightly raised. We have found that it is better to allow the head to be in a line with, or even sometimes a little lower than the body, the removal of the blood being effected by turning the head to one side or the other. In operations in dental surgery, performed in this manner, we have never known the blood to cause any embarrassment whatever.

THE LIPS OF PATIENTS.

Unnecessary pain and annoyance is sometimes caused patients by operating in the mouth when the lips are in a dry and feverish condition. Small napkins will not always protect them, and the rubber

dam is especially irritating to some mouths. Large cracks are often caused by dental operations, and these are at times exceedingly obstinate and persistent. The dentist should always have at hand some good lubricating preparation, which may be freely applied before commencing operations. Glycerine is sometimes used, but nothing could be worse, as from its affinity for water it will make the lips more dry than before its application.

The following preparation we have found exceedingly useful, and whenever a patient comes with dry, or cracked, or feverish lips, we invariably present the salve-box, with directions to apply it freely:

Ol. Amyg. Dulcis,	℥ ss.
Cera Alb.,	℥ i.
Cetacei,	℥ ss.
Ol. Bergamot,	℥ ss.
Aq. Aurantii flor.,	℥ iss.
Aq. Rosae,	℥ iss.
M.	

Or the following may be employed in the same manner:

Cetacei,	℥ i.
Cera Alb.,	℥ ijss.
Ol. Olive,	℥ viii.
Glycerine,	℥ viii.
Otto Rose,	Q. S.

LABORATORY LATHES.

Those who sit at the bench while grinding, polishing, etc., will find that they can run the lathe with half the labor and with twice the force if they will have a treadle upon each side the fly-wheel, and use both feet. When but one foot is employed all the force must be applied when the crank is going through about one-fourth of its revolution, and it requires a considerable expenditure of strength to get and keep the proper momentum. But if two treadles be used the feet alternately relieve each other, and force is employed through nearly the whole revolution of the wheel.

Some years since we had such an one made by simply lengthening the shaft through the fly-wheel, putting a crank on each end and applying two treadles, and while we have had other lathes in the laboratory, they have had an almost complete vacation, as they become insufferably tiresome after the use of the double treadle.

CARIES OF HUMAN TEETH.

Too late for insertion in this number has come to hand a valuable paper upon the above subject by Dr. Miller, of Berlin, which contains the results of his further investigations. Dr. Miller is an indefatigable student, and has the benefit of the best chemical laboratories of the world, together with the advice and co-operation of some of the great chemical teachers of Germany. His conclusions, therefore, are anxiously awaited, not alone by dentists, but by pathologists in other fields. The paper will be published in our next number.

MACHINERY.

In the current number will be found an article upon dental machinery, which we commend to the reader.

There has been a slight hesitation in speaking freely upon such subjects in some of the journals, for fear the publishers, being interested in the sale of certain wares, might regard their business affairs as being interfered with.

The INDEPENDENT PRACTITIONER invites, for the benefit of its readers, honest criticism of all apparatus that is offered in the market, irrespective of its commercial relations or value.

OUR JOURNAL.

The subscription list of the INDEPENDENT PRACTITIONER, already quite extended, is rapidly increasing. The journal goes to every section of our country, from Maine to the Gulf of Mexico, from the Atlantic coast to the Pacific slope. It has subscribers also

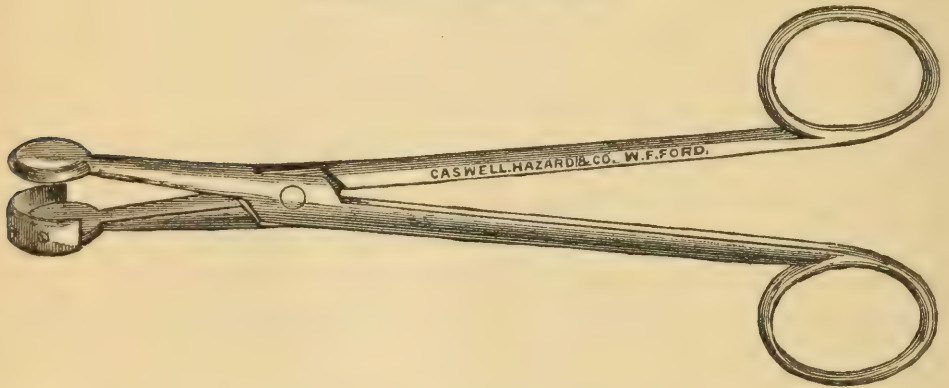
in all parts of Europe, South America, Canada and Cuba. Advertisers will please note this fact.

Subscribers who are in arrears are respectfully requested to forward the amount of their indebtedness to the treasurer, Dr. C. E. Francis, 33 West Forty-Seventh Street, New York.

New Appliances and Materials.

Under this head we will undertake, either personally or by some one of our associates, to examine and report upon such new inventions appliances and materials as may be submitted to us. Articles will be received and returned at the expense of the owners, but full directions for such return must accompany them. They will be carefully used, but we cannot be responsible for any possible loss or damage.

ABBOTT'S SCISSORS.



The above cut represents an instrument devised by Prof. Frank Abbott, for separating the gum on erupting teeth, more especially the third molars. Every practicing dentist is aware of the extreme pain and annoyance too frequently caused by the involvement of wisdom teeth in the soft tissues about them, the inflammation sometimes extending into the pharynx and to the tonsillary and parotid glands. Simple lancing of the hypertrophied tissue is quite insufficient. There is a necessity for the removal of some portions, and for this the gum lancet is inadequate, and the operation is extremely difficult when the curved scissors are employed. It is

in such cases as these that the "Abbott Scissors" will be found very useful. The cut is quite sufficient to explain the manner of their application.

OXY-PHOSPHATE CEMENT.

Eccleston's Silicious oxy-phosphate cement is an excellent article. Many of the oxy-phosphate fillings are simply the calcined oxide of zinc, and a solution of glacial phosphoric acid. This is, according to the maker, a combination of oxide of zinc and silica, with borax calcined at a high heat, which vitrifies it into a mass that must be ground very fine, and then mixed with a proportion of calcined oxide of zinc, to form the powder. It works better than any oxy-phosphate that I have used, and sets exceedingly hard. What its durability may be can only, like other cements, be determined by time.

C. F. W. B.

PEARSON'S APPOINTMENT BOOK.

We have received from the publisher, J. L. Brewster, Jr., of Kansas City, a very neat and convenient appointment book, intended to be carried in the vest pocket, yet large enough for the recording of all the appointments of a year, with the operation to be performed. Each day has eight lines appropriated to it, and as the dates are not filled out it is good for any year. It may be procured at the Kansas City dental depot.

KEARSING'S FOIL.

For some years I have been using the condensed gold foil manufactured by E. Kearsing, 101 Hoyt Street, Brooklyn, and always with satisfaction. It is very cohesive when annealed, without any of the stiffness and unadaptability so common in ordinary cohesive gold. I can most unhesitatingly recommend it.

C. F. W. B.

Current News and Opinion.

**"DIFFICULT DENTITION AND THE USE OF THE GUM
LANCET."**

[The author's proof corrections of the above entitled article did not arrive in time, and the printers could not wait, because of the absolute necessity for going to press with the first form. The following note, which was added, is therefore inserted here.—EDITOR.]

Dr. C. F. W. Bodecker, of this city, reported at the last meeting of the First District Dental Society a case which illustrates the subject, and of which he has kindly written the following account :

"A few days ago I saw a case with some very interesting reflex phenomena. The patient was a lady about twenty years of age, with a good constitution. When she entered my office she was suffering severely, so that she was hardly able to speak, and could only breathe with difficulty. The patient told me that for the last week whenever the paroxysm of pain came on she had experienced great difficulty in breathing, especially on the right side. On this side the first upper molar had been lately filled with amalgam, and ever since the filling had been introduced she had suffered excruciating pain. As the tooth was not sensitive to percussion, I diagnosed pulpitis, and perforated the pulp chamber. From the moment that the blood began to flow from the drill-hole the patient was relieved from pain, as well as from the dyspnœa, which up to this time has not recurred. I removed a part of the amalgam filling, which upon examination proved to be just the offending portion. It had been laid directly upon the exposed pulp, and a little eminence on this piece of filling showed that it had entered the pulp chamber. The pulp by the unskillful manner of filling had been irritated to such a degree that I found it dead the next day."

A CLEAR DIAGNOSIS.

Incidents of a highly ludicrous nature frequently occur in the examination of patients before a class. A professor on one occasion was lecturing to his class on the means of diagnosing disease by the

external appearance, face, and other details of the patient. Expressing his belief that a patient before the class afforded an example of the practice in question, the professor said to the individual: "Ah! you are troubled with gout!" "No, sir," said the man, "I've never had any such complaint!" "But," said the professor, "your father must have had gout?" "No sir," was the reply, "nor my mother either." "Ah, very strange," said the professor to his class. "I'm still convinced that this man is a gouty subject. I see that his front teeth show all the characters which we are accustomed to note in gout." "Front teeth," ejaculated the patient. "Well, that beats everything. It's the first time I've ever heard of false teeth having the gout. I've had this set for the last ten years." The effect of this sally, on the part of the patient, upon the inquisitorial professor and his students, may be better imagined than described.

WOOD WOOL—A NEW SURGICAL DRESSING.

In Germany the reign of carbolic acid is over, and corrosive sublimate, or sublimate as it is there called, reigns in its stead. Many substances impregnated with sublimate, such as glass, wool, ashes, sand, etc., have been employed as attempts at permanent dressings with greater or less success. Something has still been wanting, something that will absorb a large quantity of discharges, and at the same time remain aseptic. Professor Bruns' (Tübingen) wood wool (*holswolla*) is finely ground wood, such as is used in the manufacture of paper. It is clean looking, delicate fibered, soft, yellowish-white, having an odor of fresh wood, and absorbs immensely.—*Excerpt from Medical Press.*

HOT WATER IN THE TREATMENT OF INFLAMMATION OF MUCOUS MEMBRANES.

Dr. George R. Shepherd, Hartford, Conn., says:—"I have used hot water as a gargle for the past six or eight years. In acute pharyngitis and tonsillitis, and in coryza, or cold in the head, if properly used in the commencement of the attack, it constitutes one of our most effective remedies, being frequently promptly curative.

To be of service it should be used in considerable quantity, (a half pint or a pint at a time,) and just as hot as the throat will tolerate. I have seen many cases of acute disease thus aborted, and can commend the method with great confidence."

IGNORANT TEACHERS.

"Odontalgia, I need not tell you, is one of the most common of painful affections, and every one has at some time experienced the atrocious pain of toothache. This neuralgia is often determined by *alveo-periostitis*, or by a carious tooth, which affects the terminal portion of the dental nerve. There exists a ready means of relief for this pain in arsenious acid, which destroys the dental pulp, a method which Tomes, Magitot and Combe have advised."—*From a clinical lecture by Prof. Dujardin-Beaumetz, Paris, France. Member of the Academy of Medicine; Physician to the Hospital St. Antoine, etc., etc., etc.*

DEATH FOLLOWING EXTRACTION OF A TOOTH.

Two cases of death after extraction of teeth, from infection of the wound, are reported in *Wratsch*. Both were strong, healthy men. The reporter, Dr. Sacharewitsch, recommends the careful disinfection of instruments and hands, and the use of antiseptic washes, (carbolyzed water one to two per cent) after extraction of teeth. After bleeding has stopped, the wound may be packed with iodoform and sealed with cotton wadding dipped in collodion. The pain ceases almost at once, and no reaction occurred in nineteen cases so treated.

DENTAL CONVENTION.

The Connecticut Valley Dental Society will hold its annual meeting at the Haynes House, Springfield, Mass., Nov. 7th and 8th, 1883.

The Members of the Society are requested to contribute material to their different Sections, so that when called, matter of interest and value may be reported.

Per Order of Executive Committee.

A. M. Ross, Secretary.

BROOKLYN DENTAL SOCIETY.

The Brooklyn Dental Society held its annual meeting on Monday evening, October 8th, at the residence of Dr. J. H. Race, 366 Clinton Street.

The following were the officers elected for the ensuing year :

President—J. H. Race.

Vice President—J. B. Brown.

Recording Secretary—L. G. Wilder.

Corresponding Secretary—Will H. Johnston.

Treasurer—F. C. Walker.

Librarian—W. M. Ramsdell.

The society is in a prosperous and harmonious condition, and proposes to hold a place in the front ranks.

WILL H. JOHNSTON,
Cor. Secretary.

A JUST CRITICISM.

Our journals have much to answer for to the profession, not the least of which is the charge of being largely instrumental in giving to some men a reputation for ability and representative standing that they never could have acquired by a strict reliance upon intellectual qualification. "One Journal," indeed! An almanac is more than sufficient for the caliber of some dental intelligencies.—

Extract from a rejected communication.

INSANITY IN THE UNITED STATES.

The tenth census gives some interesting and suggestive facts relative to the increase of insanity in this country. The total number of insane in 1870 was estimated at 37,432, as against 91,997 in 1880—an apparent increase of over 100 per cent. This gives a ratio of one insane person to every 543 of the population—a much larger estimate than many observers will be willing to admit.

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No. 12.

Original Communications.

CARIES OF THE HUMAN TEETH.

BY DR. W. D. MILLER, BERLIN.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT COLOGNE.

In the beginning of this communication I wish to say what to most present may be self-evident ; that to any one who has made a moderately extensive study of the subject of dental caries, the phenomena associated with this lesion will be found to be so numerous as to render impossible any attempt to fully describe them all, much less account for their origin in the space of a few pages.

I shall therefore be compelled to pass rapidly over those results of my investigations which, having been already published, are perhaps more or less familiar to most of the gentlemen present, and dwell at greater length upon the results of more recent experiments, which have not yet been made public.

We may employ five different methods in studying this question.

First. The structure and chemical composition of the teeth, and the nature of the agents and reagents by which they are surrounded in the human mouth, are carefully considered, so that we may be

able to form an intelligent conclusion as to the probable results produced by their action upon each other.

Second. Carious teeth, both in the fresh and dry state, are, in thick sections, subjected to a careful *macroscopical* examination.

Third. The anatomical changes produced by caries in the structure of the tooth are studied on *microscopical* sections of the various tissues of the tooth.

Fourth. The exact chemical changes which have taken place in the diseased tissues are determined by proper chemical analyses.

Fifth. Pieces of sound tooth tissue are subjected to conditions as similar as possible to those found in the human mouth, for the purpose of artificially producing the phenomena of caries.

No one of these methods, taken alone, could constitute more than an imperfect treatment of the subject, but all taken together, especially if their evidence points in one direction, appear to furnish as complete a solution as we at present are capable of obtaining.

These different methods have all received consideration in my investigations, and shall be allowed their proper value in this exposition, though not in the order mentioned above.

At present, three different theories—the inflammatory, chemical, and parasitical—are being advocated with about equal zeal, to account for the phenomena of dental caries. To these may be added my own views, which are not in complete accordance with either of the above mentioned hypotheses.

Up to within a few months the conviction had become pretty general that the first stage of dental caries (if not the whole process) consisted in a decalcification of the tissue of the tooth by various acids. Later, however, a reaction arose in America, the object of which was to replace acids by an agent of a parasitical nature, but no attempt was made to prove that this agent had in reality the power of producing the effects which had previously been attributed to acids. On the other hand, the advocates of the parasitical theory of decay distinctly affirm that no acid is necessary, and that no decalcification takes place in the process of caries. This is the fundamental idea, and at the same time the fundamental error of the germ theory.

This reaction seems to have had its origin in certain tests of the saliva in cases where caries was rapidly advancing, where no acid condition was found, an experiment which is without significance, simply because the experimenter failed to state under what conditions and at what time the experiment was made, and because the absence of an acid condition of the saliva itself tells us nothing whatever as to what is going on between the teeth, or in fissures or cavities of decay. If any one should tell me that the saliva of a certain person whose teeth were decaying rapidly was not acid, I would readily accept the statement as a fact, but I do not see how I could found a theory of dental caries upon it. I will, moreover, show farther on, that a neutral, or but slightly acid reaction of the saliva where caries is rapidly advancing, and an acid reaction where little caries is present, are by no means necessarily at variance with an acid theory of decay.

We may put it down as an axiom, that whenever a mixture of saliva with saccharine or amylaceous substances, or a solution of either in normal saliva, *i. e.* in saliva as it is found in the human mouth, stands for from four to five hours at the temperature of the human body, as sure as once one is one an acid will be generated, and this acid will with equal surety have the power of decalcifying tooth tissue.

If a patient comes to us directly after eating, there is not so liable to be an acid reaction where food has lodged, as some hours afterward. If he has very carefully cleaned his teeth before coming, there is still less liability to an acid condition. If he goes to bed without cleaning his teeth, there will invariably be a strong acid reaction in the morning where food has remained about the teeth.

I have of late examined two hundred and thirty cavities of decay; two hundred and twenty-five were acid, four neutral and one alkaline. Meat in saliva becomes acid in four to five hours, neutral in ten to twelve, and alkaline in fifteen. This circumstance may account for an occasional temporary alkaline reaction.

The test for acid should be made in the following manner: Absorb the excess of moisture in the cavity, remove the outermost portions of the rests of food, and apply the litmus paper to the

deeper parts which come less in contact with liquids in the mouth, or directly to the carious dentine itself ; the degree of acidity is often a source of great surprise.

I broke up several teeth, perfectly free from caries, but of different density, into fragments of various sizes, and put the pieces in a mixture of saliva and bread. The mixture was kept at a temperature of thirty-seven degrees Centigrade for three months, being renewed in that period five times. I then showed a number of these pieces to a well-known practitioner of thirty-three years standing, and asked him if they were not strange cases of caries. He replied, No ! he met with such cases daily. The dentine was, in many of the pieces, softened through and through, and in all to a considerable depth. Where the softening had penetrated through the dentine to the inner surface of the enamel, the latter was coated with a layer of white powder, exactly as we find it in natural caries ; the edges of the enamel (where the pieces were fractured) were reduced to a powder from one-quarter to one-half mm. in thickness ; cracks in the enamel presented an opaque, whitish appearance, and in some cases could be penetrated by a fine-pointed instrument. At the neck of the tooth the dentine had become softened, though not as extensively as in the crown ; the edge of the enamel was rough and fragile, and in some cases an instrument could easily be inserted between it and the dentine ; on the grinding surface, where the tooth was of very poor structure and full of fissures and pits, the tissue had been reduced to a soft, cheesy mass, such as we so often meet with in third molars.

In two cases, evidently owing to a defect in the structure, the teeth were attacked on the cusps and reduced to a powder ; where the acid had penetrated through the enamel, its effect was seen to spread out in all directions in the dentine ; where the enamel was very hard and dense, without crack or blemish of any kind, it had not even lost its lustre. In fact, all the phenomena of white decay were here reproduced with the greatest accuracy. If the mixture was allowed to stand until the reaction became alkaline, or if the pieces were exposed to the action of the air, or to various articles

of food, such as coffee, tea, tobacco, juices of fruits, etc., all possible shades of color ever exhibited in carious dentine were produced.

This experiment shows clearly enough what a vast difference the structure, (density) of the tooth makes in its resistance to decalcification, and offers an explanation of the question why all teeth do not decay alike. A dense tooth, covered with enamel, intact at every point, would probably resist for years the action of an acid saliva, to which a soft, defective tooth would succumb in a few weeks.

It also shows that the process of decalcification may go on in cracks and fissures too fine for food to penetrate, in fact anywhere, where saliva holding starch or sugar in solution may find access, and be retained even by capillary attraction, there to undergo fermentation.

It might, therefore, happen that in a mouth containing soft, porous teeth, which were rapidly decaying, no strong acid reaction would be perceptible, because the acid soon after being generated would, for a great part at least, enter into combination with the lime of the tooth, whereas if the teeth were dense and protected by perfect enamel the acid would combine very slowly, or not at all, and the litmus might show free acid where there was no caries. This is, in theory at least, by no means an impossible case. On the contrary, it lies quite within the bounds of probability, and shows how careful we must be in drawing conclusions about the nature of caries, simply because now and then we, at the time of making the test, fail to discover as much acid as we think we ought to.

We should first answer the question : Has not the acid, or a great part of it, already spent itself upon some vulnerable part of the tooth? The fact established by the above experiment, that the rapidity with which tooth tissue is acted upon by the acid of tooth caries is inversely proportional to some multiple of the density of the tooth, I consider to be of the greatest importance, as furnishing a key to the solution of the question of the great difference in the liability of the teeth in different persons, or of different teeth of the same person, to decay.

If we drop a lump of rock salt and one of ordinary table salt of the same size into a pail of water, the latter will disappear almost instantly; the former not until after the lapse of a comparatively long time. The difference, however, is probably no greater than would be seen in the action of the same acid upon a very dense and a very porous tooth. This difference is chiefly due to the much greater extent of surface exposed by the porous tooth; also to the fact that the saliva holding starch or sugar in solution may penetrate it and become acid by fermentation; and further, to the fact that a porous tooth containing a less amount of lime salts than a dense one requires less acid for its decalcification.

I cannot subscribe to the view held by some that no lime salts in a state of solution are to be found in the mass of decayed dentine. It may be easily shown that the amount of lime salt in solution which we could expect to find at any one time in a piece of carious dentine, as large, for instance, as half a pea, which has been a year in forming, would be so small as easily to escape detection. I have, however, with three or four such pieces, very seldom failed to find the salts in question. I make the test in the following manner: Three or four freshly extracted teeth, containing large quantities of softened dentine, are carefully washed to remove all traces of food. The softened dentine and enamel is then thoroughly removed, and placed in a small glass vessel with about four c. cm. of distilled water, (the larger pieces are cut into slices with a sharp, clean knife) and allowed to stand for half an hour. It is then filtered through three thicknesses of moistened Swedish filter-paper, the filtrate strongly acidulated with pure concentrated nitric acid, and any excess of the solution of molybdate of ammonium added, when it is briskly shaken and placed in an oven having a temperature of forty degrees Centigrade. Sometimes in a few hours, at other times in two to three days, yellow crystals of phospho-molybdate of ammonium will be deposited on the sides and bottom of the test tube. The solution of molybdate of ammonium is prepared as follows:

I.	{ Molybdate of Ammonium,	100 grams.
	{ Ammonia,	400 Cc.
	{ Distilled Water,	600 Cc.

- II. { Pure Concentrated Nitric Acid, 1000 Cc.
 { Distilled Water, 500 Cc.

The first is poured into the second.

We should beware of the statement that free acid cannot exist in contact with tooth tissue. My experiment shows that it can and does exist in contact with sound enamel, at least four months, without perceptibly affecting it. This error arose no doubt from the assumption that acids act upon the inorganic constituents of a tooth in the same manner as upon a simple salt of lime. There is, however, a vast difference; we have in tooth bone not a simple carbonate or phosphate of lime, but a definite chemical combination of these salts with the organic matter of the tooth.

If, therefore, from any cause the tooth is defectively constructed, imperfectly calcified, containing numerous interglobular spaces, soft and porous, or if through any general or special disorder of the system, or repeated pregnancy, a removal of the lime salts already deposited takes place, or any weakening in the bond of union between the lime salts and the organic matter, the tooth does not thereby become carious, but acquires a predisposition to caries.

Not only is it possible to produce, as above described, artificial caries which to the naked eye exactly resemble natural caries, but the microscopical changes may be equally well produced. Place a piece of dentine which has lain for three months in the normal mixture, in a test tube, cover with a drop of saliva and add enough bread to produce an acid reaction. Infect strongly with fungi from the human mouth, and allow it to remain for four weeks, being careful to keep the reaction acid by the addition of fresh saliva and bread if necessary, and then make microscopic preparations in the ordinary manner. Even preparations made from dentine which has, for some months, been exposed to the action of saliva and bread without the particular infection described above, show all the characteristics of natural caries.

I will demonstrate here a slide containing sections of dentine, some artificially, others naturally decayed. I leave it to any one who is able to decide which is which.

M. Schlencker, of St. Gallen, enumerates in his little work entitled

"*Ueber das Wesen der Zahnverderbniss*," one hundred and thirteen different substances which repeatedly are brought in contact with the human teeth as food or medicine, nearly all of which are injurious to them, some producing effects visible to the naked eye in the space of five minutes.

I do not attach overweight to these agents, nor do I by any means ignore them ; a slight lesion of the enamel produced in this manner may constitute a point of beginning for the ordinary agents, and result in the production of caries in a place which otherwise would have remained intact, to say nothing of the ravages which are sometimes produced by such occasional agents alone. Schlencker relates a case in his own practice, where a patient with medium teeth had them totally ruined by following a grape cure.

We may well meet with cases of caries which we cannot account for, if we pass blindly over facts of this nature.

A school of investigators in America, who have received the name of "Bacterians," and who look upon *putrefactive* bacteria as a first, chief, and almost sole cause of caries, has been repeatedly directing attention to one result of their experiments, viz. : that the proportion of lime salts in carious dentine is nearly or quite the same as in normal dentine ; *i. e.* no decalcification has taken place.

Simple analyses of carious dentine, as well as of dentine softened in the mixture of bread and saliva, I published in the July number of the *Dental Cosmos*, and I need only repeat here that analyses of large pieces of carious dentine made by different persons, gave an average of twenty-six per cent of lime salts ; carious dentine just from the surface of the normal gave an average of fifty-seven and five-tenths per cent, and that the analyses of dentine decalcified in saliva and bread gave results identical with those obtained from analyses of carious dentine.

These analyses, however, I do not hold to be of much value in settling the question of the etiology of *caries dentium*. They simply show what, until recently, had so long been looked upon as a settled fact, and what must at once suggest itself to every man who has ever excavated a carious tooth, that a tolerably thorough decalcification of the dentine takes place in caries ; that the extent

of the decalcification decreases as the distance below the surface increases (it could not well be otherwise); that on the border of the normal dentine the decalcification is comparatively slight, and that the same characteristics are presented by dentine softened in a mixture of saliva with various articles of food, as by carious dentine. We obtain no idea, however, as to how much the tissue of the tooth has lost, or how much the lime salts have lost; we do not even know from the analyses whether the organic matter has lost anything at all. To obtain a more satisfactory solution of this question I proceeded as follows: I procured three perfectly fresh teeth which contained large quantities of carious dentine. These teeth were washed in a gentle stream of water, to remove all remains of food, and the softened dentine removed, *in one piece*, with a spoon-shaped excavator. The joint volume of the pieces was then determined by an instrument specially constructed for the purpose, which gave the volume at once in cubic millimeters, and also by the ordinary picnometer. Then, (from the same teeth if possible) pieces of sound dentine were procured whose volume was determined in the same manner. The pieces were then dried for thirty hours at one hundred and five degrees Centigrade, and analysed. I give the result of one analysis.

187.2 cubic millimeters of sound dentine weighed	—	0.3600
“ “ “ “ carious “ “ —		0.0821
	Loss —	0.2779
<hr/>		
The sound dentine gave on analysis 72.1 per ct. lime salts,		0.2595
“ carious “ “ “ “ 26.3 “ “		0.0192
	Loss —	0.2403
<hr/>		
The sound dentine contained 27.9 organic matter,	—	0.1004
“ carious “ “ “ 73.7 “ “ —	—	0.0605
	Loss —	0.0399
<hr/>		

The carious dentine had accordingly lost on the whole, seven-ninths of its original mass, the lime salts had lost twelve-thirteenths, and the organic matter two-fifths.

In plain words, the carious dentine had suffered an almost complete decalcification, only one-thirteenth of the original amount of lime salts being still present. The organic matter had suffered the comparatively small loss of two-fifths of its original amount. This loss is no doubt attributable, for the most part, to the direct action of the micro-organisms upon the more completely decalcified portions of the carious dentine.

The results of these experiments are too plain to require further explanation. They show an almost complete decalcification of the carious dentine, and a comparatively small reduction of the organic matter, also that the organic matter yields *last* to the destroying agents.

If there is any one who still believes that caries is due to an attack upon and destruction of the organic matter by fungi, and a consequent liberation of the lime salts, which are *subsequently* washed away by mechanical means, he will learn, farther on, more of the fallacies of such a belief.

From the experiments above described, and from the analyses of carious dentine, we can draw no other conclusion than that in the process of dental caries the destruction of the lime salts goes far in advance of the destruction of the organic constituents, nor can I see how any unprejudiced mind can contain any other idea than that the decalcification is the result of the action of some acid or acids. Of course we cannot be sure that there may not possibly be some agent of a neutral or alkaline reaction, which may be able in some way, or under some condition, to slightly decalcify the teeth. A question of much greater importance is this ; do the fungi found in the human mouth have any part in the production of the acid which effects the decalcification ?

I have already pointed out in the columns of the INDEPENDENT PRACTITIONER, that fungi are found in the human mouth which, beyond doubt have the power to produce acid fermentation, but although I have made a great many experiments and cultures for

the purpose of determining, if possible, how many different species of fungi we have to deal with, and to what extent each is to be held responsible for the acid produced, yet the difficulties in the way of a permanent solution of the question are so numerous that I have not yet arrived at results which I would feel justified in presenting to you as conclusive. Having now, however, I venture to state, definitely established the important facts that the first stage of dental caries consists of a decalcification by acids, and the second stage of a destruction of the decalcified tissue by micro-organisms, I shall henceforth direct my whole attention to the question of the origin of the acids.

It would be a tiresome and, I hope, an unnecessary task for me to describe in detail the results which I have obtained from a microscopical examination of carious dentine, enamel and cement. This I have already done in the May and June numbers of the *INDEPENDENT PRACTITIONER*, in the January and July numbers of the *Dental Cosmos*, and at the Union Dental Convention, held at Springfield, Mass., in June last. I will, therefore, give but a short outline of the results. Primary caries of the enamel is almost, if indeed we may not say absolutely, independent of micro-organisms. Not only are they incapable of penetrating sound enamel, but even enamel whose integrity has severely suffered by the action of acids is generally free from any invasion. Caries of the enamel proceeding upon its inner surface, is likewise independent of organisms.

Whether the small amount of organic matter which remains after decalcification does or does not fall a prey to fungi, is a matter of no importance whatever. Its survival in the human mouth is, under all circumstances, an impossibility. No more can the fungi of tooth caries penetrate normal dentine. On the contrary, the normal dentine is, as a rule, separated from the infected dentine by a zone of softened, non-infected dentine, of considerable width; nor does the advance of the fungi at all correspond in outline with the advance of the decalcification. In a word, the invasion of the fungi is always preceded by the decalcification of the dentine. Any one who has succeeded in overcoming the technical difficulties in the way of making perfect preparations of carious dentine, needs no

other instrument than the naked eye to convince himself of the truth of this statement.

The dentine, having become thoroughly decalcified, owes its farther destruction to the action of fungi. No changes can be seen in the structure of the softened dentine when no fungi are present; where the fungi have invaded the tissue we find the tubules extended, often to many times their normal dimensions, with a varicose outline; farther on two or more tubules run together, through the destruction of the basis-substance. In this manner caverns originate in the dentine, filled with the remains of the decomposing tissue and micro-organisms. These are more frequent and larger the more we near the surface, and lead finally to the complete obliteration of the structure, or to the destruction of the tissue itself.

Primary Caries of the Cementum is very seldom met with, and its consideration need not occupy us long. The preparations which I have show a softening of the tissue, followed by the never-failing micro-organisms, which, however, do not penetrate the tissue to any appreciable depth. In some instances they may be found in the cement corpuscles, as well as in their offshoots. With a few exceptions, I have not been able to detect any evidences of an inflammatory action, such as occurs in bone corpuscles, and even in these instances I could not be certain that the change was due to an inflammatory process.

A few words must be given the inflammatory theory of decay. We notice in the first place a complete absence of all the cardinal symptoms of inflammation. Redness and heat of course we do not expect to find in a nonvascular organ. We might, however, expect some slight swelling. Especially is the perfectly painless character of the process, unless the pulp itself becomes affected, very remarkable, and it precludes the idea of any exudation, since the latter, in a tissue as resistant as dentine, ought by pressure upon the dentinal fibrils to give rise to the severest pain. It is also a significant fact that we utterly fail to produce caries of the teeth by any agent which might be

employed to produce inflammation in any other part of the human body; wounds, contusions, fractures, partial or complete interruption of the nutrition, produce no symptoms of inflammation in a tooth. We may even crush the tooth with the forceps, destroy the pulp, partially cut off its external source of nourishment, (the pericementum) and there will still be no more indication of any inflammation or caries than when we began, and if by any mechanical contrivance we protect the remains of a tooth so violently treated from external agents, it will not become carious. Moreover, as long as pulpless teeth and human teeth inserted on pivots or plates decay as rapidly as living teeth, we are hardly justified, I think, in looking upon inflammation as a very important factor in the production of caries.

I have been still further convinced, by an examination of several hundreds of specimens, that after decalcification has taken place, the only change of any importance which occurs is produced by micro-organisms. There is no expansion of the tubules, no formation of caverns, no melting down of the tissue, no change whatever by which one could distinguish carious dentine from dentine artificially softened in some weak organic acid, where fungi are not present, nor have I succeeded in finding anything which I could look upon as analogous to any of the products of inflammation found in other parts of the human body. I have here a slide containing sections of carious dentine from living and from dead teeth, and sections of dentine in which the phenomena of caries were from beginning to end artificially produced, outside of the mouth. I hope that an opportunity will be given to any one who is desirous of making the attempt, to determine which is which.

If, then, acids perform so important a part in the production of caries, can we not prevent or reduce its ravages by alkaline mouth-washes? Probably not, and for reasons which are very evident. Take a piece of dentine which has become partially decalcified by lying two or three months in a mixture of bread and saliva, thoroughly remove every particle of bread from its surface, hold it for half an hour in a stream of water if you like, then dry the moisture from its surface, and press it against a piece of blue litmus

paper to squeeze out some of the liquid in the tubules. The paper becomes instantly and intensely red. Exactly the same process goes on in a carious tooth, and the experiment may be repeated with carious dentine with equal success. The acid generated by fermentation is taken up into the softened dentine, or the saliva having penetrated the tubules there undergoes acid fermentation in the substance of the dentine itself. We might as well try to neutralize the pieces of dentine in a mixture of saliva and bread by pouring an alkaline solution on the outside of the vessel containing them, as to remove the acidity of a piece of dentine in a cavity, perhaps filled with food, by a superficial rinsing of the mouth with some weak alkaline mouth-wash.

The acid which has worked its way into the dentinal tubules, or has been generated there by fermentation, does not enter immediately into combination with the lime; a certain time elapses before it passes through the tubules and comes in contact with the lime salts, and then to all appearance a certain time again elapses before decomposition takes place.

I may say that in my investigations into the cause of caries I have consumed, in the last two years, at the lowest estimate, eight thousand teeth, having had a daily supply of from five to twenty teeth.

Since last February, when I wrote the articles for the *INDEPENDENT PRACTITIONER*, I have made untiring experiments and investigations to determine the presence of acids in the human mouth, and their ability to produce the phenomena of the first stage of caries. I have with equal zeal sought for factors which might be taken into account in connection with acids, and while I have failed to find the latter, my faith in acids has increased constantly, until to-day I see the need of little or nothing more than organic acids and fungi to account for all the phenomena of dental caries.

Give me these two factors and I can produce caries which will deceive the most experienced operators and microscopists.

I may sum up in the following propositions the results of my investigations on the subject of *caries dentium*:

First. The contact of saliva with amylaceous or saccharine food, (not to speak of nitrogenous food,) or a solution of sugar or starch

in saliva, kept at body temperature, invariably gives rise in four or five hours to a strong acid reaction, due to the generation of an organic acid.

Second. There must consequently be in the human mouth a constant though variable generation of acid, because of the impossibility of keeping the mouth perfectly free from food and from solutions of amyloids in saliva, which penetrate cracks, pits, and fissures, or are held by capillary attraction between the surfaces of teeth in contact, and there become acid by fermentation.

Third. The degree of acidity depends somewhat upon the length of time which has elapsed since partaking of food, and will be found greatest on rising in the morning.

Fourth. A cavity of decay in which saccharine or amylaceous food has remained for some hours, must and will be found, always and without exception, to have an acid reaction.

Fifth. The extent to which any tooth suffers from the action of the acid depends upon its density and structure, but more particularly upon the perfection of the enamel and the protection of the neck of the tooth by healthy gums. What we might call the perfect tooth would resist indefinitely the same acid to which a tooth of opposite character would succumb in a few weeks.

Sixth. An occasional possible absence of an acid reaction in a cavity of decay is no indication that acid has not participated in the production of the cavity. Little or no value can be attached to tests of the saliva alone.

Seventh. Any general or special disorder or condition of the system which results in the withdrawal of lime salts from a tooth, or in a lowering of its density, or in a weakening of the chemical union between the organic and inorganic matter of the tooth, renders it more liable to decay.

Eight. Strong acid and corroding substances brought but momentarily into the human mouth, may give rise to lesions of the enamel at points where the ordinary agents alone could never have begun.

Ninth. All the *macroscopical* appearances and characteristics of caries may be produced with the greatest exactness *out* of the

mouth, simply by subjecting teeth to those acid mixtures which are constantly to be found *in* the mouth.

Tenth. The superficial layers of carious dentine undergo an almost, if not absolutely complete decalcification, which decreases as we approach the normal dentine. The same is true of dentine decalcified in saliva and bread.

Eleventh. The destruction of the organic constituents follows (not precedes) the decalcification, and is evidently for the most part to be ascribed to the action of fungi.

Twelfth. The fungi found in the human mouth do not participate *directly* in the process of decalcification. The exact part which they perform in the production of an acid reaction requires farther investigation.

Thirteenth. The fungi produce the most manifold anatomical changes in the softened dentine, resulting in the complete obliteration of the structure and final disappearance of the tissue in a mass of debris and fungi.

Fourteenth. The invasion of the micro-organisms is always preceded by the extraction of the lime salts.

Fifteenth. The destruction of the tissue remaining after decalcification, is effected almost wholly by fungi alone.

Sixteenth. Inflammation can hardly be looked upon as a very important factor in caries of the teeth.

Seventeenth. Caries of the enamel is purely chemical, the decalcification resulting at once in the complete dissolution of the tissue.

Eighteenth. Caries of cement runs a course analogous to caries of dentine, a softening of the tissue by acids, and following this its destruction by fungi; a slight inflammatory action on the part of the living matter in the corpuscles, is not to be excluded.

RIGHT-HANDEDNESS.—This extends very far along the animal series. Parrots hold their food by preference in the right foot, and, though we cannot speak positively, wasps, beetles and spiders seem to use the right anterior foot most commonly.

AMERICAN DENTAL ASSOCIATION—AGAIN.

“PLAIN WORDS ARE BEST.”

There were some things which occurred at the last meeting of the American Dental Association which cannot be passed over in silence. They grow more aggravating as one reflects upon them. The quotation from an editorial in the *INDEPENDENT PRACTITIONER*, at the head of this article, encourages the writer in giving a few personal impressions which were made upon him, while a certain subject was under discussion.

I entered the parlors of the International Hotel, at Niagara Falls, where the Association held its meeting, just as that body had attacked the subject of Dental Education. In my time it has been my fate to hear a great deal of loose, rambling and pointless talk at such meetings, but never has it been my misfortune to listen to such nonsense and witless verbiage as was heard by that audience. While that subject was up for discussion, New York seemed to claim most, if not all, the attention of the speakers, and to growl at something that New York had or had not done was the rage of the hour. One New Jersey orator was especially eloquent in his denunciation. But what appeared to me the most unfortunate part of this whole display, was the utter lack of “Education,” or even common information, on the part of those who were foremost in attacking the law of the State of New York. Their rantings only proved them deplorably ignorant of the law and its provisions. No reasonable explanation could be made of their tirade, unless it was their intention to talk against time, and in that they were eminently successful.

The dentists of New York are quite content with their law, and it is quietly, but surely accomplishing the objects that its originators intended, “improving and regulating the practice of dentistry in the State.”

The law may not be perfect in every particular, but if the American Dental Association is dissatisfied with it, and wishes it changed, they are taking a very sure way *not* to accomplish their end.

And the Baby of the A. D. A. with the long name, "The National Association of Dental Examiners," takes up the cry, and makes a still worse mess of it, by recommending a law the whole burthen of which is to create a board of examiners *that will be entirely independent and beyond the control of any State society or other organization, and responsible to nothing but its own sweet will.* In so far as that "august" body copied the present law of the State of New York it did well, and if it had copied the provisions relating to the formation of State and district societies, and especially to the organization of the boards of dental examiners, it would have exhibited better judgment. Such board should always be elected by the State society, controlled by the State society, and responsible to that society for its every act, with no power, in and of itself to grant a diploma or certificate of qualification. The working of the New York law, which has been in successful operation for fifteen years, is simply this: "When a candidate presents himself before them with the proper credentials from the censors of the district society in which he resides," said credentials must state that the candidate "is of good moral character and professional attainments," "has been with some reputable dentist four years," "one year deducted for a complete course of lectures in a dental or medical college."

Then, and only then, has the New York State Board of Censors a right to examine him. "And if the inquiry and examination shall be satisfactory, *the board shall recommend him to the State society for a diploma or certificate of qualification.*" If their report or recommendation is accepted by the State society, the "President in the presence of the State society," *not* the Board of Censors (their duty is, solely, to examine), issues the diploma or certificate of qualification.

That is—the Dental Society of the State of New York, reserves to itself the right to, at all times, control its Board of Censors, believing it will best serve the interests of all to have this power in the hands of the profession, guarded by the State society, rather than to delegate it to a few, as this law recommended by the "National Association of Dental Examiners" does.

New York can congratulate herself that she was not represented, and had no voice in promulgating that law.

Another striking point of contrast occurs between the recommendations of that conference of examiners, and the actual workings of the New York law. It has been notorious for years that the examinations of the New York board have been more rigid and more severe than any that have ever been made of the candidates for graduation in any dental college.

The proofs of this are seen, first, in the comparatively small number who have attained the degree—only about eighty in fifteen years, while some of the other State boards have turned out as many “certificates of qualification” in a single year; and secondly, hardly a year passes but some candidate who has received his degree from a dental college, but who very properly regards the State degree as of higher value, is so unfortunate as not to pass the examination and attain it.

The National Conference publishes its examination papers. No candidate can secure the degree of M. D. S. in the State of New York, until he has passed an ordeal three times more exacting than that entire list of questions indicates.

The law of New York now requires that *every* man beginning the practice of dentistry hereafter within its borders, shall possess a degree. It may be M. D., it may be D. D. S.; but if a man possessing neither comes from another State, even after long experience, he cannot practice until his degree is registered in the County Clerk’s office of the county wherein he intends practicing. The wisdom of the New York law is shown in the provision it makes for men who, by long practice or otherwise, are thoroughly qualified dentists, but who have no degree.

How is it possible for any reasonable being to maintain for a moment that a degree hedged about with such difficulties is “adverse to the interests of the dental profession.”

Vastly more pertinent would have been a resolution of the Association saying “that a certificate of *qualification* granted upon the examination papers of the Association of State Boards will be deemed “adverse to the interests of the dental profession.”

“Whom the gods will destroy they first make mad.”

The resolution of the American Dental Association above referred to, must have had some such fatality in its origin. But who would have believed that the Dean of the Pennsylvania Dental College had been so suddenly converted, and must make such marked exhibition of virtue.

How would the Dean and Faculty of the Pennsylvania Dental College have regarded a similar resolution emanating from a national society of dentists upon their action a few years since, when they invited a number of gentlemen to an informal conversation on dental topics at the close of a session, and forthwith their names appear *as graduates*, with the degree of D. D. S., not one of whom had attended a single course of lectures in that college or anywhere else.

The dentists of New York State are disposed to be liberal, and cultivate harmony, professional and social good feeling among their fellows, and are at all times ready to do their part in every honest endeavor to unite and secure a high and uniform standard of qualification. And I trust they will continue to do so, until this question of dental education has a firmer basis, a higher standard, and more attention is given to the qualifications necessary to obtain the degree of D. D. S.

What is most needed is some method by which the qualifications of each student shall be thoroughly *tested* before he can enter the ranks of the profession, an entire change in the manner of granting the degree, and one that will oblige students to seek the schools where they will be best taught, in lieu of those where they can get through the easiest.

K. H.

GOOD SOLDERS.

Hard Silver—Silver, 2 dwt.; copper, 9 grs.; zinc, 3 grs.

Soft Silver—Silver, 2 dwt.; copper, 8 grs.; zinc, 5 grs.

Hard Gold—Gold, 2 dwt.; copper, 9 grs.; silver, 3 grs.; zinc, 1 gr.

Soft Gold—Gold, 2 dwt.; copper, 8 grs.; silver, 5 grs.; zinc, 5 grs.

GUTTA-PERCHA STOPPING.

CHAS. E. FRANCIS, D. D. S., NEW YORK.

[NOTE.—Frequent inquiries concerning the practical value of this material and the method of manipulating it, is the writer's excuse for printing the following communication.]

Among the various preparations for filling carious teeth, gutta-percha stopping holds an exceedingly important place.

Cases are commonly presented where defective teeth can be better preserved if filled with this material, than with any other substance. Owing to its nice adaptability to the dentinal walls, together with its slightly expansive nature, it can be made to seal cavities in which it is packed, with a remarkable degree of thoroughness.

For bucco-cervical cavities of second and third molars, it will stand for years, and prove exceedingly effective in preventing renewed decay.

It is frequently and advantageously used for packing against cervical walls of large buccal or approximal cavities, prior to introducing fillings of oxy-phosphate of zinc or amalgam; also for repairing large gold fillings with cervical borders slightly undermined.

As a stopping for deciduous teeth, it can be quickly introduced, and in most cases answers admirably; also for impoverished or poorly calcified teeth when attacked by caries, and is peculiarly well adapted in cases of white decay, or where the tooth structure is undergoing rapid decalcification.

As a temporary stopping for early decay in permanent teeth, nothing can surpass, or perhaps equal it, for safety. It holds good until the dentine becomes more dense, and the patient older and better able to tolerate the introduction of compact gold fillings.

In cases where the dental pulp is nearly or quite exposed, protection should be afforded by a covering of oxy-phosphate of zinc to prevent pulpitis, which might be occasioned by the expansion and consequent pressure of gutta-percha stoppings. Similar care should also be observed where the enamel-walls are so exceedingly frail as to become easily fractured.

Although these stoppings are liable to wear away when much

exposed to attrition, the surrounding cavity-walls usually remain well preserved. They are, moreover, easily repaired or renewed, and with no loss to the tooth structure.

For large stoppings, much exposed to wear, caps of gold plate can be fitted to cover them accurately, on the cavity surface of which may be soldered small loops or "T"-shaped anchors. Such a cap, warmed over a spirit-lamp, can be imbedded in, or united with the fillings, leaving a firm gold surface on which to masticate.

With a degree of tact and experience, gutta-percha stoppings can be manipulated readily and with comparatively little trouble. Cavities should be prepared as nicely as possible, and kept dry while filling is introduced.

Small pellets of the stopping heated to a plastic condition, can be carried to the cavity on the point of a small curved and flattened instrument. Gentle pressure against the walls packs it securely. The excess can be trimmed away with flat heated instruments, and the surface rubbed with burnishers. A bit of cotton or spunk moistened with chloroform, held with tweezers and passed over the filling, will also aid in smoothing it.

Great care is requisite to avoid over-heating the material. If warmed over a spirit-lamp it must be held considerably above the flame. It is safer to place bits of the stopping on a piece of heated porcelain, or a small covered vessel of boiling water, preparatory to use.

Gutta-percha stoppings, if well impacted in properly prepared cavities, seldom prove treacherous, but as a rule are exceedingly safe and reliable.

A CASE IN PRACTICE.

BY DR. W. P. RICHARDS, ORANGE, N. J.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NEW JERSEY.

The subject I desire to present this evening is Ulceration of the Antrum, and my process of treatment. To some of you it may be known, but I have never heard this method spoken of. I will mention a case, in order that I may be better understood.

About three years ago a lady suffering from this disease came to me for advice. I asked her to describe the symptoms, which she briefly did, as follows: "I have no appetite, have dull pains in the head, and my husband often speaks to me about my offensive breath."

Upon making an examination I found necrosed the left upper central and lateral incisors, also the canine, from which originated the trouble. I asked her how it happened there were so many dead teeth in her mouth. She informed me that while on a visit near Newton (in this State) she had trouble with her teeth, and consulted a dentist in that place. His method of procedure seemed to be to apply that much-abused remedy, arsenic, in all the teeth mentioned, then dismissing her without making further appointments, that he might remove the devitalized pulps and commence a proper course of treatment.

Over the canine was a slight opening discharging pus. Probing carefully, I found that the instrument extended along the palatine arch until the patient informed me that it could be felt with the tongue. I then noticed in the vault of the mouth a dark red spot, about the size of a pea, but did nothing to it at that visit, and only syringed out the opening on the bucal surface with carbolic acid and warm water. I also drilled out the fang of the canine tooth from the lingual surface, in order to give vent to the accumulated pus, requesting the patient to call next day. Upon returning she complained that the roof of her mouth was very sore to the touch. The dark spot had become somewhat larger and quite soft. I came to the conclusion that an opening was necessary. Using the lance, a large quantity of pus followed. The weather was cold enough to have windows closed, but it did not take long to open them and let in plenty of fresh air, which was necessary because of the terribly fetid odor of the liberated pus. The antrum was freely washed out with permanganate of potash and water.

After the patient had left I contrived the rubber drainage tube seen in the model now before you. To insert this tube I used a pair of long slender pliers, and was careful to see that the silver band at the end of the tube fitted snugly around the opening.

There was now a clear unobstructed channel to the seat of war, and no danger of its closing up to retain pus. This tube was worn without discomfort, is easily made, saves time, trouble, and a cure can be effected sooner, I believe, than by any other method. Should you ever have such a case it is well worth a trial.

The essential feature in the treatment of this case was the insertion into the opening in the palatine arch of a silver canula, with a broad flange, sufficient to prevent its passing entirely into the antrum. To this was attached a rubber drainage tube, which could be utilized as well in the injection of the proper remedies.—EDITOR.

NOTES ON OPERATIVE DENTISTRY AND ITS ADVANCEMENT.

BY GEORGE H. PERINE, D. D. S., NEW YORK.

(Continued from page 594.)

It is estimated that the amount of gold used annually for filling teeth by the 13,000 dentists in the United States is valued at over \$500,000, and more than \$100,000 worth of other materials is employed for the same purpose.

In 1840, Dr. Westcott discovered the properties of cohesive gold foil, and Dr. Arthur advocated its use, and in 1857 published a treatise on the subject fully explaining his mode of using the foil, and describing the instruments necessary for working the same. Still later, heavy foils were introduced into practice, but were not generally adopted. In 1853 A. J. Watt patented sponge gold, which was strongly recommended for filling by Drs. C. W. Ballard, Blakesly, Dwinelle, and others. The last named in 1855 published a treatise on its use, and described the instruments requisite for the purpose.

Platinum was used for a time as a material for filling, and silver was extensively employed for the same purpose, but was at length discarded on account of its easy oxidation and lack of ductility. Amalgam, which is now rather extensively used in practice, was first made by M. Tarcan, and was introduced into the United States about 1833. For a time its use was strongly opposed by many leading dentists, and it became the subject of a lively controversy,

the outgrowth of which was, in several instances, considerable bitter personal feeling between those interested. In 1848 Dr. E. Parmly published a paper entitled: *The Properties and Effects of Amalgam Examined*, which was the same year followed by an article from the pen of Dr. John Trenor entitled: *Observations on Amalgam, with Cases*.

In 1855 Dr. Elisha Townsend presented to the specialty a formula of Dr. Wm. M. Hunter's, consisting of four parts of silver to five parts of tin, which proved highly acceptable. Dr. H. G. Luther introduced, in 1860, a preparation which he called adamantian, which was a white filling, composed, as he claimed, of unoxidizable metals, and not likely to corrode. At the present time there are many preparations made by different persons, containing metals which combine so perfectly with each other as to produce the most satisfactory results.

Metallic filling, composed of metals fusable at a low temperature, and thus capable of being "cast" in the cavity, were introduced, in 1864, by Dr. B. Wood, but failed to become popular.

Tin foil was used as early as 1820, and still holds its place as a very satisfactory material, not only for temporary but permanent fillings also, when the abrasion is slight.

About 1848 gutta-percha began to be used as a temporary filling, and in 1849 Dr. A. Hill obtained a patent upon a preparation for filling, of which gutta-percha constituted the principal element, and which was known as "Hill's stopping." Osteoplastic, a filling of oxy-chloride of zinc, was offered to the profession in 1857, by Dr. James Pearson, since which time a number of preparations have been presented, not differing essentially from this, except in name. Dr. J. P. Michaels, in 1874, recommended caps of gold or mother of pearl, and of various sizes, which were to be pressed into the cavity which had been previously prepared, and filled with plastic stopping, ready to receive them. "Slayton's felt foil" a preparation which was patented in 1878. It is a metallic filling of fibrous character, which is obtained by reducing the metals to shreds. It is claimed by its inventor, Dr. N. B. Slayton, that it is more cohesive and pliable than any filling heretofore used.

Plastics and Plastic Filling is the title of a work of some consequence by Dr. J. F. Flagg, which appeared in 1881.

Before turning our attention to another subject, it will perhaps be as well for us to refer to some particular methods which have been employed for securing a better anchorage for the foil in peculiar cases; namely, the adoption of gold screws, which have been in use for many years. After their introduction into practice they were improved upon by Dr. Mack, who prepared instruments for adjusting them, and made the screws of different sizes.

Irregularities of the teeth have of late years received particular attention from the specialty, and the best methods of correcting them have been carefully considered. It is not necessary for us to enter into details regarding the correction of the dental defects above referred to, the methods and theories of practice in this respect being all laid down in the text books, which are numerous and varied. Among the appliances resorted to are inclined planes, ligatures, springs, etc.

In 1846, Dr. Tucker recommended rubber tubing for ligatures, and in 1857, Dr. Dwinelle employed and recommended the jack screw for the expansion of the jaw. Soft and hard rubber, gold and cast plates are principally employed for this purpose.

Dr. Joseph H. Foster recommended for some cases the spiral spring, and for the purpose of preventing the displacement of rubber ligatures gold screws were often brought into service by him.

In 1841, Dr. Solyman Brown wrote an essay upon the subject of regulating the teeth of children during the period of second dentition, and Dr. W. Dalrymple, in 1868-9, published accounts of several interesting cases of irregularities which he had succeeded in correcting, and upon the same subject Dr. J. N. Farrar has recently published a series of valuable papers.

Restoring teeth is a department of operative dentistry in which great improvements have been made within the past half century. At the beginning of the nineteenth century, natural or animal teeth were engrafted upon roots by metallic or wood pivots. About 1820 porcelain pivot teeth began to be used. They were improved upon by Dr. Hudson, and others.

Dr. E. A. Bigelow obtained, in 1827, a patent upon a mode of engrafting artificial teeth with wood pivots and gold cylinders upon the roots.

Dr. J. S. Dodge, in 1844, recommended a pivot consisting of wood enclosing a metallic tube, which formed an opening for the escape of pus and gas.

In 1848, Dr. H. Lawrence introduced another method of pivoting. The artificial tooth was made with a hole entirely through it, into which a screw pivot passed, entering the root which had been previously prepared to receive it. During the following year he obtained a patent upon this method.

In 1849, Dr. F. H. Clark recommended a metallic pivot, made to fit a cylinder set in the root, through which it passed. The tooth could be easily removed for the purpose of cleansing.

In 1862, Dr. B. Wood presented a method for restoring the form and beauty of decayed and broken teeth. The appliances he proposed were caps of different sizes, intended to cover the entire crown of the tooth, made from tooth-body material of different shades, having grooves, slots, or platina pins baked in. These crowns to be engrafted upon the remains of teeth, with plastic filling.

Since 1862, various methods of attaching artificial crowns of gold or porcelain have been introduced by Drs. Foster, Richmond, Wetherbee, Bonwill and others, the latter gentleman having obtained a patent for his invention in 1881.

Dr. W. N. Morrison claims to have employed gold crowns as early as in 1869, but a patent for a similar method was, however, obtained by Dr. John B. Beers, of California, in 1873, whose claim to the origination of these crowns is generally believed to be well founded, as he had employed them as early as 1868.

In 1846, Dr. H. Crane issued the first Dental Register, in which all operations performed may be recorded, and a space where remarks relative to the same may be entered. Since the above date there have been several registers presented, one possessing an advantage over the other, yet each good in its way.

We will not attempt to enumerate here the almost countless, yet

valuable contributions in the form of mechanical appliances and improved instruments, which have within the past fifty years been presented to the specialty, but in another department a list will be given of all such for which patents have been obtained.

Reports of Society Meetings.

REPORT OF THE MEETING OF THE AMERICAN DENTAL SOCIETY OF EUROPE, HELD AT COLOGNE, GERMANY.

(Concluded from the November Number.)

Dr. Elliott—Made some remarks in regard to amalgams; he called attention to the fact of our ignorance of the materials we are using every day, and to the unsatisfactory character of the text books on the subject; that we have no facts, no data, to guide us in coming to some conclusion as to which is the best amalgam for any given case. For the purpose of obtaining a definite standpoint he undertook a long series of experiments extending over several months, testing no fewer than forty-three different kinds of amalgam, for shrinkage, for breaking strain, etc. To ascertain the latter, nine discs of each kind, seven m. m. in diameter, and 1.10 m. m. in thickness, were subjected to measured pressure, fractured and tabulated. In testing for shrinkage, a mass of amalgam weighing 2.460 grammes was suspended in water from the beam of a delicate balance. Any change of bulk taking place was shown by the deflection of the beam. Observations were taken after each specimen had been suspended for forty-eight hours. This mode of testing for shrinkage was first used by Mr. C. Tomes, of London, some years ago. The tables giving the result of these experiments were quite interesting. Four amalgams expanded, one being American and three English, while all the others contracted. Dr. Elliott found that (taking 0 as the starting point to facilitate comparison) the expansions were $+\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{2}$, $2\frac{1}{4}$ respectively. The contractions were as follows: one, $-\frac{1}{2}$; two, $-\frac{3}{4}$; seven, -1 ; sixteen, less than $-1\frac{1}{2}$; seven, less

—2; and five, less than $-4\frac{1}{2}$. In testing for breaking strain, three discs were mixed soft, three medium, and three dry. Out of thirty-nine specimens, twenty-five were strongest when mixed of medium stiffness, ten when mixed dry, and only four were best when mixed moist, showing that each amalgam should be mixed in the way which renders it strongest. The range of strength was great, one of Dr. Elliott's specimens standing a pressure of fifteen and one-half pounds, while others would not stand more than one or two pounds. He found that one specimen stood a pressure of twelve and one-third pounds when mixed wet, and only one pound when dry; another, a pressure of eight and one-third pounds when mixed dry, and only two pounds when wet. According to these experiments the value of an amalgam seems to be quite independent of its cost; one which best stood the tests being an old-fashioned kind, costing twelve shillings per ounce, while one sold for £3 3s. per ounce proved to be of medium quality. Dr. Elliott intends to continue his experiments during the year, and to present the full results for publication to the next meeting of the American Dental Society of Europe.

Dr. Edwards—Described as follows the Morrison method of pivoting teeth:

In the first place the root canals must be prepared, removing as little as possible of the tooth substance, and in all cases leaving as much substance below the gum edge as possible. Then carefully fit a band of thin platina about one-eighth of an inch wide and solder with twenty-four carat gold. Outside of this band fit one of coin gold about one-fourth inch (or wider if necessary), and solder with eighteen carat gold; then place it upon the root to obtain the exact length for articulation; when ready the only thing remaining is to solder on the cusps, stamped up previously.

I keep a stock of various sizes ready, and all the parts also, so that I am able to get through the operation in little time. When all is soldered, the file soon finishes up the overlapping edges, and when polished I gild it. A screw should then be screwed into the root (a steel screw with head is best), so as to give additional hold for the fixing of the cap. All being ready the cap is filled with oxy-

phosphate cement, and pushed well up into place, the platina thin edge being well up under the gum. Then with a burnisher the platina can be perfectly adapted to the neck of the root, thoroughly protecting the cement from the fluids of the mouth. I prefer to pierce a hole in the center of the crown to allow of the escape of the superfluous cement, and afterwards fill it up with gold.

Dr. Jenkins—Had not seen the method described, but thought that the shortness of time required for the operation was much to its advantage. He read a portion of an article by Dr. Exeter, relating to bridge-work, and took exception to the universal condemnation of bridge-work in Exeter's article. He finds very many cases where it is advisable, and others where it is absolutely necessary, to do work of this kind. In his practice he has met with patients who were not able to endure the thinnest gold plate, and in such cases has employed the bridging process with great success. Dr. Jenkins exhibited a case where central, lateral, cuspid and bicuspid, were supported almost entirely by two roots. There was no place where food could lodge, it was perfectly clean, not in the least annoying to the patient, and allowed of perfect ease of enunciation.

Dr. Walker.—I had the pleasure of examining a similar case inserted by Dr. Thompson, of London. I saw the case after three months, again after twelve, and lastly after twenty-four months. The bridge-work was in perfect order in every respect. I saw another case, not by the same operator, two weeks after the operation had been performed. The tooth was out, and the central and lateral incisors, which had been devitalized in order to furnish support, were in a very bad condition.

Dr. Patton.—I have done some work of this character, and up to the present time with perfect satisfaction.

Dr. Cunningham—Described two cases in practice, illustrating the restoration of contour in gold, with porcelain facing. One case had stood, up to date, eighteen months, the other fourteen. The part of the stopping which would be visible from the front consists of a plate of porcelain ground out of the center of an ordinary plain tooth, and containing the two platinum pins. A groove towards the cervical margin and another towards the biting edge of the

tooth having been carefully prepared for the reception of the ends of the platinum pins, bent at right angles to one another, the piece of porcelain, after being carefully adjusted, was fixed by a layer of oxy-chloride, and built into position with gold. The pulp of the tooth was preserved alive in both instances, and it is only on the very closest inspection that the thin line marking the joining of porcelain with the natural tooth can be seen. The great advantage of an operation of this kind consists in a greater æsthetic and artistic effect ; the disadvantage is that the strength and durability is no doubt less than that of the restoration with gold alone.

Dr. E. deTrey—Gave an account of an exceedingly interesting case of no dentition, or rather case of non-eruption.

In the autumn of 1882, he said, Dr. Rossier, of Vevey, came to my office with a young lady, about 26 years of age. She had a very healthy appearance, but was in a very nervous state. She had full upper and lower plates, made with gum teeth. The doctor and herself gave me a full explanation of the case.

Miss B., from Lausanne, never had a first nor second dentition. Not a single tooth ever made its appearance in either jaw. She had been suffering acute pain in the head and in both jaws for the last four months. She could not sleep, and had no rest without morphine. I took out both plates and found the alveolar ridge in a state similar to that in a mouth where all the teeth have been extracted a few months before, but the posterior parts rather flat on the surface, and the place occupied by the eye teeth more prominent.

The plate was hurting the patient by an unequal pressure on different parts of the alveolar ridge. I proposed to her to have the teeth extracted in the most painful parts. Miss B. accepted. Chloroform was administered, and with a sharp lancet I laid the gum wide open on both sides of the posterior part of the lower jaw, for extracting the back teeth. I found a strong wall of the alveolus covering the teeth. Having no saw to suit those places I tried the chisel to uncover the teeth, but finding this way too slow and quite unsuccessful, I used the burring engine, with a large, sharp, Gates burr drill. In a short time a deep groove was drilled on each side of the alveolus, a piece of it taken out, and the teeth uncovered.

My assistant was washing the blood constantly with a syringe and sponge. I extracted six teeth; they were found in all positions, horizontal, up side down, etc., the first tooth joined to the second by exostosis, the roots of some of the first teeth partly absorbed. When I saw that the teeth were in such a condition, I went on extracting all.

The front lower teeth presented the greatest difficulty. They were so deeply placed in the jaw that I had to cut perpendicular grooves on each side of the eye teeth, down to the bottom of the roots, and a deep hole on each side of the neck of the tooth, upon which to place the points of narrow and sharp forceps. These teeth were extracted forwards, instead of upwards, as usual. All the other teeth had to go through the same process. The incisors were found in a very healthy condition, and no trace of first dentition left. All the upper teeth were taken out in the same way. One of the eye teeth was found occupying a horizontal position, towards the middle of the palate. Its place was marked by a prominence. This tooth was very large, and so very deeply placed that I was afraid of making an opening into the nasal fossa.

The Gates burr drills worked beautifully in cutting the bone, yet I never had to use so much strength as for this extraction. The tooth adhered to the bone, and had a slight exostosis. The wisdom teeth were also found very deeply placed.

The operation lasted about two hours; the quantity of blood running all the time made it slow.

The patient went back to Lausanne the same day. She came back twice, to have small pieces of the alveolus extracted. Since the operation she has been entirely free from pain.

Wishing to know something about the parents' teeth, I wrote to the mother, who gave me full information. Father and mother had good teeth until the age of fifty. They had never heard of such a case in their family.

Dr. Kellner—demonstrated his method of taking an impression with wax, using Rostaigne's impression material, a composition consisting of wax, with soapstone and coloring matter. He first takes a rough impression. This is laid in cold water for a few moments,

until it becomes hard. The part of the impression corresponding to the teeth is then cut away, and a piece of the impression material, one-eighth of an inch thick, softened in water at forty-five degrees Reaumer, is placed over the entire surface of the impression, which is then again inserted into the mouth. A very sharp impression may be obtained in this manner.

By marking on the wax the position of one or more of the most prominent teeth, it becomes very easy to insert the tray the second time, in the same position that it occupied in taking the first impression.

Dr. Cunningham—strongly recommended the use of *Dr. Coffin's* preparation of gutta-percha for taking impressions.

The next meeting will be held at Vevey, Switzerland, beginning on the last Tuesday in August, 1884.

W. D. MILLER,

Secretary.

OHIO STATE DENTAL SOCIETY.

The eighteenth annual meeting of this society was held in the city of Columbus, commencing Wednesday, Oct. 31st, and continuing three days. The attendance, for various reasons, was less than usual, but the sessions were interesting and spirited.

The officers were as follows:

President, *Dr. J. W. Lyder*, of Akron; Vice-President, *Dr. A. Berry*, of Cincinnati; Secretary, *Dr. J. H. Warner*, of Columbus; Treasurer, *Dr. G. W. Keeley*, of Oxford.

Very little, save routine business, was accomplished at the morning session, and the society adjourned early. The State Board of Examiners met at noon, and two applicants for admission to practice were examined.

At the afternoon session, *Dr. H. A. Smith* suggested that the first two subjects "Etiology of Dental Caries" and "Is Dental Decay Unitary or Multiple," be discussed together. This was agreed to.

Dr. J. Taft—Said that to his apprehension the cause of the decay of teeth is more general than special. He enumerated and described a number of the causes leading to the disintegration of the organic

substances making up the teeth, saying that in the formation of the teeth the organic portions are formed first, and then the inorganic, and that in their decay the inorganic matter goes first.

Dr. H. A. Smith—Spoke of the distinction between caries and what is called chemical abrasion. He recommended the use of nitrate of silver in the latter. He compared the different theories of dental decay as held at the present day. He presented the views of Dr. W. D. Miller, of Berlin, as opposed to those of Dr. Watt, and held to the belief that bacteria have something to do with the decay of teeth. He was of the opinion that Dr. Watt's hypothesis was not satisfactory. Investigators had not recognized the presence of the three acids, lactic, sulphuric, and nitric, save very rarely.

Dr. A. Berry—Holds that decay is unitary.

Dr. F. H. Rehwinkle—Said that the believers of the theories of chemical and bacterian causes of decay, seem inclined to come together in their views. Dr. Watt has not been correctly understood. When he speaks of an acid condition, he means the manufacture of a strong acid in the cavity of decay, which may be very destructive. Experiments made out of the mouth could not be conducted under the same conditions as those in the mouth.

Dr. Smith—Said that oxy-chloride of zinc would exercise a preservative influence on tooth tissue. With oxy-phosphate, the same result might be obtained by its imperviousness.

Dr. J. A. Robinson—Read a paper entitled "Dental Protection; Leaves from my Experience." It was principally devoted to the cleaning of the teeth. He referred to the universality of law, and said that when teeth decayed there was a reason for it. He drew a number of parallels between selected cases from his practice, in which all the conditions seemed alike, save that in one the teeth were regularly and faithfully cleaned, while in the other they were neglected. He detailed the varying conditions of the mouth and of the work done at the end of different periods of time, the results markedly proving that very much of decay of the teeth, as well as the failure of good fillings, is due to neglect and uncleanness upon the part of the patient.

Dr. Rehwinkle—The profession is now all torn up over the reme-

dies proposed. We are ever turning to new ones, which we are continually accepting on somebody's recommendation. Carbolic acid is now placed low down in the list of antiseptics. There is much of enthusiasm over eucalyptus, but its very disagreeable odor is exceedingly objectionable.

Dr. H. A. Smith.—Do you not recognize dental decay as a pathological condition?

Dr. Rehwinkle.—Well, if it be not so at its inception, it is very apt to soon become so.

Dr. C. R. Butler.—Referred to the recurrence of decay in cavities where a thin layer of partly decalcified dentine, supposed to be disinfected, had been left. When this had been covered by a cap of oxy-chloride, he was of the opinion it acted as an antiseptic.

Dr. Siddall.—Recommended the use of the cements under large gold fillings.

Dr. J. M. Whitney, of Honolulu—Said that he had been on the Sandwich Islands for fourteen years, and during a part of that time he was the only dentist there. He had tried to keep pace with the advance of thought, but had never discovered anything that would act as a substitute for gold in the filling of teeth. He gave a very interesting description of the dental diseases prevalent upon the islands.

Dr. W. P. Horton.—Said that there was a continued growth of dental decay, and an increase of dental diseases, and evidently this was coincident with the advance of civilization.

Upon the opening of the morning session of the second day, the subject of Dental Education was presented. The President brought up the question of recommending indigent students to certain eastern colleges as objects for a reduction in the fees demanded, and said that he had been greatly annoyed by such applications. He desired instruction as to the advisability of such certification by the President of the society.

Dr. J. Taft.—Presented the following :

Resolved, That this society hereafter declines to certify any student for a beneficiary scholarship in any college.

After some discussion the resolution was unanimously adopted.

Dr. J. G. Templeton—Presented a paper upon “The Effect of Zymotic Diseases on the Dental Organs.” He urged that the effects of these diseases were hereditary, and were transmitted from parents to children, and that small-pox, scarlet fever, etc., affected the growth of the permanent teeth in children.

Dr. H. H. Harrison—Read a paper upon “Dental Education,” that subject being again called up. He said that the question of how the coming dentist should be educated was of paramount importance, because upon it rested the answer of what the profession was to be in the future. To succeed in any profession the student must be possessed of a reasonable preliminary education, must have quick perceptions, gentlemanly instincts, and mechanical ability. The latter is essential, because whatever there is that separates dentistry from general medicine requires a mechanic and an artisan to properly perform.

The necessary mechanical training demands that the student shall have a good preceptor. After he shall have spent two years in careful preliminary study he is prepared to comprehend and appreciate college lectures, to listen to the various theories advanced, and to choose the method of practice that is best adapted to his needs.

Dr. A. Berry—Also presented a brief paper upon the same subject. In the discussion that ensued the general tone was that a higher standard of qualification in dental students was necessary, and it was believed that recent agitation of the subject had resulted in a better class of matriculants in dental colleges.

During the afternoon session the Committee on Ethics presented charges against two dentists, who had violated the code of ethics by advertising a noted quack anæsthetic called Vitalized Air.

A veterinary dentist, who had given an equine clinic before the members, was given the privileges of the floor and invited to address the society upon the methods of operating upon the teeth of horses.

On motion, the fourth subject of the programme was taken up, “Tin Foil as a Filling.”

Dr. J. W. Lyder, the President—Opened the discussion. He recommended that a layer of fibrous or felted tin be folded within a sheet of gold, and both be consolidated together.

Dr. C. R. Butler—Exhibited some instruments specially adapted for the manipulation of fibrous tin.

He spoke of the difficulty of making good fillings with this material, but said that with proper instruments and knowledge of how to operate, the most satisfactory results could be obtained. He also spoke of the great improvement in the preparation of the foil. He had not used it folded with gold, as the President had described, but had frequently used the tin first, and placed gold on top. This made a good, durable filling, which he believed better than either all gold or all tin. He described an adhesive material which he used in his operations, for supporting the rubber dam when working on a cuspid. His practice was to insert the tooth in the usual manner through the rubber, and then place the substance around the base of the tooth, when it would adhere and hold the rubber in place without the pain and trouble of clamps or ligatures. The formula for making the substance is as follows: Gum damar, 7 ounces; pure white wax, 4 ounces; Canada balsam, 1 drachm. Melt the gum damar, and add in turn the wax and balsam. Pour on a wet surface, and afterward make into sticks. This substance will adhere to a dry surface.*

Dr. J. G. Templeton—Said that he used tin in preference to amalgam. There was a preservative quality in tin that was most gratifying to the practitioner.

At the evening session, Dr. J. H. Siddall read a paper on "Old Engines and New." In connection with it he exhibited a dental engine invented by himself.

The election of officers resulted as follows:

President, Dr. A. Berry, Cincinnati; Vice-President, Dr. C. H. James, Cincinnati; Secretary, Dr. J. H. Warner, Columbus; Treasurer, Dr. Geo. W. Keeley, Oxford. Drs. J. Taft and F. H. Reinhinkle were re-elected members of the State Board of Examiners.

At the morning session of the third day, Dr. W. P. Horton, of the Committee on Amendment of the Dental Law, made the following report:

* This preparation is also very useful in stopping holes accidentally made in the rubber dam.—EDITOR.

Your Committee on Amendment to the Dental Law would report to your honorable body, and recommend that the portion of the present law giving the appointing power of the Board to the Ohio State Dental Society be retained, and that the number of examiners be left to the discretion of the society; that the law be so amended as to require a registration of all dentists in the State with the Clerk of Court of Common Pleas in each county, and that a certified copy of said registration be sent by said clerk to the chairman of said Board of Examiners; that the penalties for violation of the law be retained about the same as at present.

It was unanimously adopted.

The Committee upon Amendments to the Code of Dental Ethics made their report, and this was followed by a scene which was exceedingly painful to every loyal member of the society. The President refused to recognize Dr. R. G. Warner, one of the members against whom charges had been preferred, but he persisted in being heard, and there ensued a contest of lungs against mallet in which neither was entirely victorious. Finally Dr. Harroun, from the Committee on Ethics, submitted the following report:

Having examined the charges of unprofessional conduct in advertising, preferred against Drs. Warner and Gares, of this city, we find them to be the authors of a card which we deem a violation of the code of ethics of this society, and we hereby recommend that they be expelled or suspended from membership of this society, unless they make acknowledgement to the same.

Upon motion, the report was accepted and the members were declared suspended until they shall make proper acknowledgements.

The Executive Committee reported the following subjects for discussion at the next session, to be held in Columbus, on the last Wednesday in October, 1884:

1. Improvements in artificial dentures.
2. Affections and treatment of the active organs of mastication.
3. Therapeutics in dental practice.
4. The difficulties in filling teeth.
5. Pathological conditions of the mucous membranes of the oral cavity; causes and appropriate treatment.
6. Food, digestion and nutrition, in relation to the healthful condition of the teeth and fluids of the mouth.

7. Histology of dental tissues, as shown in the process of development.

Dr. F. H. Rehwinkle—Secretary of the State Board of Dental Examiners, reported that three candidates had presented themselves for examination. Two of them failed in their examination last year, and were now re-examined, and granted certificates of qualification. The third had, after studying the questions submitted to him, asked permission to withdraw, without prejudice to his future appearance.

The society then adjourned.

CONNECTICUT VALLEY DENTAL SOCIETY.

TWENTIETH ANNUAL MEETING, HELD AT THE HAYNES HOUSE, SPRINGFIELD, MASS., NOVEMBER 7TH AND 8TH, 1883.

The meeting was opened at 2.30 P. M., the President, Dr. Morgan, occupying the chair. After the reception of the regular reports and the transaction of routine business, it was moved that "Incidents of Office Practice" be taken up.

Dr. Bartholomew—Said that if life was to be kept in the society the members must contribute more, and not depend entirely upon the eminent men from abroad for papers and instruction. To come here for the sole purpose of listening to strangers was no way to keep up a society. He then related a case of disease of the gums and teeth at the gingival margin, caused he believed by ingredients of a physician's prescription for malaria. He found that sulphuric acid was used as a solvent for the quinine in the prescription. Cessation of the medicine did not stop the softening, but a strong solution of bi-carbonate of soda temporarily checked it.

Dr. Geo. L. Parmele—Has been much interested in the reports of some dentists who have visited the hospitals in New York. There is one gentleman who frequently goes to Roosevelt Hospital. He had noticed in the past, that in the treatment of wounds iodoform had been freely used, but at his last visit he had found everything

in the amphitheatre changed. The floor beneath the operating tables was so arranged as to float away the debris, and iodoform is no longer employed, but the new German treatment by corrosive sublimate has been substituted. The solution used is one gram to the thousand grams of water. The patient is placed upon the table, and the wound thoroughly washed by a stream of this solution, instead of by the application of the sponge. After an operation the wound is closed by sutures soaked in the oil of rosemary, and mats of powdered peat soaked in a corrosive sublimate solution are used in the dressing.

Dr. Thayer—Did not believe that malaria had any effect upon the teeth. Thought that in the case mentioned by Dr. Bartholomew the sulphuric acid used in the prescription had wrought the mischief. He had learned a better way to treat malaria than by tonics. Observation had taught him that the diseased condition was caused by irritation of the spinal nerves, resulting in hepatic congestion. Had used mandrake peptonoids and capsicum, the latter to regulate the drastic effect of the remedy.

Dr. L. D. Shepard—Spoke by invitation about his trip abroad during the past summer. He said that no rest was so complete as that of an ocean voyage. It is such an entire change from the home life, and the sea air is so invigorating, and the opportunities for improvement are so great, that in his opinion it is the most sensible way in which one can spend a vacation. He referred to the state of the profession in England, and to the social distinctions there. John Tomes and Spence Bate have lately been honored by the distinction of F. R. S., and this lifts them far above the common level, in the estimation of the world of society, and gives them a social distinction not enjoyed by other dentists.

The election of officers took place at this point, and resulted in the choice of the following :

President—Dr. A. M. Ross, Chicopee, Mass.

1st Vice President—Dr. Geo. L. Parmele, Hartford, Conn.

2nd Vice President—Dr. S. B. Bartholomew, Springfield, Mass.

Secretary—Dr. W. F. Andrews, Springfield, Mass.

Assistant Secretary—Dr. A. Maxfield, Holyoke, Mass.

After the installation of officers elect, the regular order was called.

Section One had no report. Section Two reported through its chairman, that a paper by Dr. J. L. Williams from that section would be read at the evening session, and that Dr. E. A. Stebbins would present a pathological case.

Dr. E. A. Stebbins—Presented a case of absorption about the roots of a superior first bicuspid tooth. The patient first came under his care two years before, and the present condition did not develop until some time after he had removed the tartar deposits. When this was first noticed the teeth were loose, the gum tissue turgid, and he could easily reach the apex of the root with an instrument. Sulphuric acid was injected, but since then the tooth had received no treatment. He presented the case here for advice and counsel.

Dr. Searll.—Whether this condition is inherited or is the consequence of neglect, we have no testimony to show. There is no indication of constitutional taint. We have such diseases in their primary and secondary form. The primary is amenable to treatment, but the secondary is inherited, and is comparatively incurable. We are not sufficiently heroic in our treatment of such cases. I scarcely think that this tooth can be permanently benefited by remedies, but there are other teeth in the same mouth that can be saved from the fate of this one. I object to the use of the syringe in the treatment of such cases, because I use strong remedies that should not come in contact with other localities and tissues than the diseased ones. I sometimes make a single application of a solution of one part of sulphuric acid in three of water. At other times I use deliquesced carbolic acid. If it is again necessary to medicate I perhaps employ either of these, but in reduced strength, always applying with a suitably shaped piece of orange wood.

Dr. Parmele—Dr. Searll's objections do not apply to the syringe if that of Dr. Farrar is used, and an assistant is called to manipulate the screw-rod.

Dr. Stebbins—Wished to ask two questions. Can this condition be defined, and could it be caused by mercury introduced into the system at the age of twelve years?

Dr. Stockwell—Detailed cases of this disease, and believed that the cures effected had been due to the antiseptic treatment used.

Dr. Bartholomew—Thought this the worst class of cases we have to deal with. They may be divided into two forms: one was wholly local, the other constitutional. The former is readily cured if you can control the patient. He cited the cure of a lady for whom Dr. Riggs operated twelve years ago, and the trouble was thought to be completely overcome. But some time since a disordered condition induced the diseased state again, and now she is losing her teeth, one by one.

Dr. Shepard—Said that he had been a faithful student of the symptoms of this disease since he saw Dr. Riggs operate upon Dr. Goodrich, fifteen years ago. If we attribute our failures to constitutional conditions, we are cowards. How far it is best to distrust the presence of constitutional taint and rely upon heroic treatment, is the most important question to be answered. Has seen the father and the child both suffering from this disease. The child was responsive to treatment, the father was not. There was, then, an exciting cause in the parent which did not exist in the child, and that placed him beyond cure. Perhaps it was that in his case the condition had become chronic, and if it had been taken in time it might have been less obstinate. The only treatment that he could recommend in the case in hand would be that of rest, secured by the application of some fixture to act as a splint, and to be allowed to remain as long as the diseased condition continued. A bar of gold or platinum might pass from an anchorage in the cuspid, between the cusps of the diseased tooth, to the second bicuspid. Such a bar would press the tooth to place, and hold it at rest. There was evidently enough of the alveolar process to support the tooth, when the inflammation was subdued.

Dr. Searll—Described such an appliance as he had used. It was supported by four clasps, and was removable by the dentist only.

Upon motion the society adjourned until evening.

(To be continued.)

Correspondence.

NO. 1513 WALNUT STREET,
PHILADELPHIA, Nov. 15th, 1883.

Editor Independent Practitioner:

First, let me congratulate you upon the success achieved by the INDEPENDENT PRACTITIONER, and send the management a little substantial aid. I know that it takes money to run a dental journal, and I doubt not you find many more ready to receive and read your journal than they are to pay the annual subscription. As an evidence of my appreciation of your excellent work, accept the enclosed check for ten dollars.

I have read with much interest your communication on "The condition of the teeth of certain pre-historic races," and your conclusions are so at variance with my former belief, that it makes me wonder why the teeth of the pre-historic man of North America should show so much disease, while those of the ancient Egyptian indicate so little. It was my pleasure some years ago to spend considerable time in Egypt and the Holy Land. While in Egypt I had very fine opportunities for studying the teeth of the mummied remains of the early people of that country. It was during the Franco-Prussian war. The gentleman who had charge of the mummy pits at Sakkarah was a Frenchman. He had gone home on a visit, and was locked up in Paris during the siege. A little money judiciously expended, made it possible for me to gain access to the mummy pits, and I spent a day there most delightfully. In these pits were thousands of mummies that had been there at least three, and probably four thousand years, and to all appearance the hand of man had never since touched them. With the aid of two Egyptian guides I pulled them out, unwound the linen bandages from the head, and examined the teeth. I cannot remember how many I took out—but dozens of them at least—and examined hundreds of others which had already been taken out and unwound. Instead of finding caries of the teeth, contracted jaws, or irregularities, I found splendid teeth, large, well-formed jaws, and with one or two trifling exceptions no irregularity in the position of the teeth in the arch.

I did find, however, great abrasion upon the masticating surfaces of the bicuspid and molars. This I could readily account for in the fact that the ancient Egyptians (the modern as well) were in the habit of eating food which required a great deal of masticating. I continued my investigations in the museums of Cairo and Alexandria, and I find the same excellent condition of the teeth in all of the mummies there.

At the Convent of St. Katherine, on Mt. Sinai, which was established in the third century, and which contains the skulls of all the monks who have died there in fifteen hundred years, I found good teeth in all of those who lived in the earlier centuries.

I came away from the East with the opinion pretty well fixed in my mind that the earlier inhabitants of that part of world had little or no need of dentists. Had I the time, and did space permit, I would like to tell you how beautifully the mummies in Egypt were embalmed. I have in my possession one of the skulls, several jaws, and a hand, which I brought with me when I returned.

Your paper has upset many of the theories which I have entertained with reference to the antiquity of dental diseases. I cannot believe that the same number of Egyptian skulls, taken from those who inhabited earth at the same period, would show a similiar condition. I did not find tartar in a single instance. In one case I did find a single tooth missing, and absorption which would indicate an abscess (perhaps chronic).

I shall look with interest for further communications upon the same subject.

Yours very truly,

EDWIN T. DARBY.

PALAZZO MAROTTI, 172 VIA NAZIONALE,
ROME, ITALY, Oct. 30th, 1883.

Editor Independent Practitioner:

I was very much pleased with your article in the October number upon "Conditions of the teeth of certain pre-historic American races." I am especially glad, because I am working on the same

line myself, in examining into the teeth of the Etruscan people, a race which was old when the ancient Romans began their wonderful career.

Last May, I was requested by Prof. Helbig, of the German Archaeological Society of Rome, to make a report on my investigations at Corneto Tarquinius, which I hope to have ready by January next.

I expect to have good drawings made of two partial sets of teeth inserted on gold, which were taken from an Egyptian tomb, dating back five hundred years before the Christian era. I found evidences of nearly all the dental lesions which now torment the human race.

For several years I have been skeptical on the theories, certainties, and infallible proofs of our professional authorities, who were feeling their way in the twilight of doubtful evidence, and therefore I decided, if possible, to "go back of the returns" and see for myself, little dreaming that any one on your side of old ocean was doing likewise.

I am satisfied that your conclusions are correct, and that dental diseases are as old as the world, and not a modern new departure. As I am yet in "the woods" of investigation, I will not crow, but I feel that no amalgam "new departure" can compare in results with the departure you have made.

In the meanwhile, believe me sincerely yours,

J. G. VAN MARTER, A. B.; D. D. S.

NO. 548 WEST 17TH STREET,
PHILADELPHIA, NOV. 15th, 1883.

Editor Independent Practitioner:

In the report of the meeting of the Pennsylvania State Dental Society, in the INDEPENDENT PRACTITIONER for November, in the matter relating to the resolutions against dentists who invent and sell materials the formulas for which they deem it best not to publish, many of your readers may be led to believe that there is a law

in that society against patentees of dental appliances. There is no such law. The article referred to reads as follows :

“ART. 7, SEC. 2. Any dentist or professor who shall procure a *patent for a remedy* or who shall enter into a collusive agreement with an apothecary to receive pecuniary compensation for patronage for sending his prescriptions to said apothecary, or who shall hereafter give a certificate in favor of a *patent remedy*, shall be disqualified from becoming or remaining an active member of any local society entitled to representation.”

The American Dental Association is entitled to the full respect of the whole profession in having no such Puritanical laws in operation against *patentees of any kind*.

In speaking of such measures the late Professor T. L. Buckingham gave as his opinion that we have no right to make restrictive regulations—and the words expressing that opinion were the last that this respected and beloved man spoke in the Odontological Society of Pennsylvania.

Dental societies should in every way encourage all respectable practitioners to become members. Proscriptive laws of whatsoever kind should be rescinded, and their further introduction be made impossible. They are antagonistic to the spirit of our American institutions, tend to interfere with our progress, savor of tyranny, communism and bigotry, and are a reflection upon the intelligence of dentists. They are aimed against a very useful set of men in the profession, without whom there would be no real progress. They do the societies no good, because such men will not be *forced* to give away the result of their labors (hard work, which has extended over months and sometimes years,) to *spongers* who are unwilling to delve themselves. They are too apt to be introduced to gratify personal spleen, or to punish a less influential brother whose creed may be objectionable to a few in power.

My intimate acquaintance during the past twenty years with the Dental Society men of Philadelphia, has satisfied me that a very large majority of them have no sympathy with such regulations, and as recent experience has proven, are ready to expunge them *in toto* from our societies here.

AMBLER TEES, D. D. S.

Editorial.

DENTAL EDUCATION.

It is a hopeful sign of the times when so much of the attention of the profession is directed toward the proper preparation and training of those who are to fill the dental ranks when the men now in active practice shall have passed away. The growth of modern dentistry has been wonderfully rapid, and the supply of educated men has not been equal to the demand. With the introduction of vulcanite as a base for artificial teeth, and the consequent cheapening of dentures, there came a demand for dental services that was undreamed of by the old gold and silver workers. The manipulation of the new base was simple and easily learned, and forthwith there sprang into practice a great cloud of cheap dentists, whose professional knowledge was limited by the ability to extract teeth and insert rubber plates. They were usually men of little general education, and of no personal ambition. There was no such thing as dental legislation, and any one was quite at liberty to put up his sign of "surgeon dentist," and seize such prey as came within his reach. He needed no instruments or tools, save a few pairs of forceps and a vulcanizer, and so very little capital was demanded, and soon hundreds of these charlatans and ignorant pretenders were traveling the country over, extracting teeth by the wholesale, and putting in the merest burlesques upon dentistry in the shape of rubber dentures. It did not take very many years of such practice to teach people that this was not dentistry, and public sentiment soon sanctioned the passage of laws so regulating dental practice as to limit or prohibit this irruption of quacks.

The intelligent and educated honorable men in the profession are to-day working to secure a better class of students, and to bring into dentistry practitioners who may be a credit to their calling, or who at least shall not positively disgrace it. But the Almighty Dollar has charms for many who pass for representative men among us; charms which entirely outweigh their professional pride, their regard for their professional breth-

ren, their appreciation of the responsible position which some of them are called to fill, and even their character for professional honesty. While individual dentists, many of them, are carefully scrutinizing the qualifications of such students as apply to them to act as their preceptor, there are professors in colleges, deans and secretaries, who are assisting to weigh down a profession which has honored them, by periodically grinding out batches of graduates who are little better qualified to undertake a reputable practice than were the self-taught rubber workers who rushed into dentistry fifteen or twenty years ago. It is a fact which causes reputable dentists to blush with mortification and shame, that some of our colleges are little better than mere diploma mills. They rush students through a course of instruction that is ridiculously insufficient. They seize upon the flimsiest pretexts for shortening the term of pupilage. They matriculate boys who have not sufficient education to be able to comprehend the lectures to which they are supposed to listen. They welcome students with not enough of intelligence to learn to properly make a horse-shoe, and at the very shortest notice turn them out fully equipped professional men, armed with a diploma of the true signification of which they have not the faintest conception. There is no graded course, but the plough-boy who has not decently mastered the commonest elements of learning graduates as quickly as though he had been a student all his life. But one qualification seems to be required, and that is the ability to pay the fees.

We are not making an indiscriminate charge against all our colleges, for the most of them are, we believe, more conscientious in the administration of the powers granted them. But there are those, and they pretend to a respectable standing among colleges too, which seem to be entirely dominated by a contemptibly sordid, money-grubbing spirit. It is time that a halt was called, and an account demanded by the profession of the way in which some of these men are administering the trusts reposed in them. Common self-respect will soon force us to this, for the D. D. S. is a distinctively American degree, and we cannot expect the people of other countries to hold in good repute a diploma that is so abused.

It is in the heat of a righteous professional indignation, aroused by the perusal of the following letter received by us from an undergraduate in one of our schools, that we write these things. The man who penned this beautiful exhibition of scholarship is a pupil in a dental college, and another year will see him launched upon a suffering community, a full fledged D. D. S., armed with a diploma bearing the signatures of men of high standing in dentistry, who attest his eminent fitness for professional honors. We print the letter exactly as it was received, merely suppressing name and locality, though we are strongly tempted to give the college at which he is a matriculant a little free advertising.

Mr. Barrett, Esq.

Dear Sir I was informed by one of the Dental Depots the other day about you as a Dentist which I am here with the — Dental College taking a course which make me in the same line with you also and if possible I would after this term like to come and work with or for you after this term as I will not or cannot get through this year so I will have to be Idle all summer if I do not succede in geting in some plase and would like to come and practice with you this spring untill next fall which I would be very much pleased to do and hope you have a plase open for me. Please write soon.

I remain yours Resp., (— — —.)

Care of the — Dental College.

RETROSPECTIVE AND PROSPECTIVE.

This number closes the Fourth Volume of the INDEPENDENT PRACTITIONER. Perhaps a brief review of its past history will not here be out of place.

Founded by B. M. Wilkerson, M. D., D. D. S., its initial number was issued from Baltimore, January 1st, 1880. Its editors were Harvey L. Byrd, A. M., M. D., and Dr. Wilkerson. It was intended as a connecting link between the mother profession and her specialty offspring, and it was devoted to medical, surgical, obstetrical, dental, and hygienic science. In May, 1881, the journal was removed to New York. In September, of the same year, Dr. Byrd

retired from the editorship, and Dr. Wilkerson assumed the sole editorial charge. The number for January, 1882, announced as assistant editors, Geo. H. Rohé, M. D., and Geo. W. Field, D. D. S., with a very able corps of collaborators. Drs. Rohé and Field withdrew early in the year, and Dr. Wilkerson had sole editorial charge until January, 1883, when he withdrew, because of failing health, and Leigh H. Hunt, M. D., and W. C. Barrett, M. D., D. D. S., were engaged as editors. Dr. Hunt resigned in April, and since that time Dr. Barrett has been its editor. The health of Dr. Wilkerson continued to decline, and in May it became necessary for him to relinquish the business management, of which he had so far been in charge. It was therefore essential that there should be a change of proprietors. So far, the journal had been independent of all manufacturing or mercantile interests, and so creditable had been its record that those who had felt an interest, especially in its dental department, were averse to allowing it to become the organ of any advertising firm. A conference of dentists was accordingly held in New York, and it was determined to form an association for its purchase and future publication. This was accordingly done, and the INDEPENDENT PRACTITIONER passed into the hands of its present managers. All this was not accomplished with the expectation of pecuniary profit, but that an independent journal might still be maintained that should be in spirit and in deed what its name indicated. The men who were to assume its management loved the profession to which they have devoted their lives, and here seemed to open a field in which they might unselfishly labor to advance the best interests of dentistry. They were not ignorant of the severe demands which the proper conduct of such a journal would make upon their time, but they were willing to devote themselves to what they took to be a call of duty, feeling assured that they would be loyally supported by every man who really loved his profession. They take an honest pride in saying that, so far, they have not miscalculated the prospects.

The attempt to make one periodical the exponent of both a general and special practice, to satisfactorily conduct it as both a medical and dental journal, was not in all respects successful.

When the present proprietors assumed control, the prospectus for the volume had already been published, and they have honestly striven to carry out the pledges made to its subscribers. But the fact of its being in the hands of dentists has operated against its medical department, and it has been impossible to obtain such medical articles as were desirable. We have to announce, then, that so long as this journal shall be conducted by its present proprietors, it will be exclusively devoted to dental practice, and only incidentally to medicine. We make this frank declaration, that present or intending subscribers may not be in ignorance as to its future scope.

For months the proprietors have been laboring to perfect arrangements for the coming year that shall make of this our ideal of a dental journal. We have already secured some of the ablest writers in the profession, and have engaged correspondents in all quarters of the globe, who will furnish it with all the freshest thought and news of the dental world. Already we have so much of original matter offered us that, as may be seen in this number, we are obliged to give up nearly the whole of its pages to that which will not appear elsewhere, unless the matter be borrowed by our contemporaries. With the number for January, 1884, a number of improvements in the make-up will be introduced, and we sincerely believe that the *INDEPENDENT PRACTITIONER* will begin a long career of usefulness and honor.

DR. MILLER'S LATEST INVESTIGATION.

The leading article in this number contains the results of the later observations and studies of Dr. Miller, in *Etiology*. We do not need to call attention to it, for members of the dental profession everywhere, read with interest whatever he writes. His views are not merely theoretical and speculative, but are the conclusions deduced from such a series of experiments as very few men have entered upon. He expresses himself clearly and lucidly, and gives all the data upon which his inferences are founded.

Whether he concurs with him or holds different views, no candid man can withhold the tribute of respect and admiration for such a

tireless student and patient observer. The whole dental world is under obligations to him for the perseverance with which he has labored to unravel the mystery in which is shrouded so much of oral pathology.

Nor has he yet found a stopping-place. A letter but recently received, speaks in hopeful strains of the results of his very latest series of experiments, not yet concluded. He says: "I have discovered and successfully cultivated a fungus *always* present in the human mouth and in carious dentine, whose development is, under proper conditions (such as are constantly found in the mouth), always accompanied by the production of a strong acid. I have also determined the conditions favorable and unfavorable to its development, and have nearly finished the analysis of its acid. To ascertain this I have made over *three hundred* experiments and cultures. I am very hopeful that this will furnish a key to the solution of the whole problem."

Dr. Miller's article containing an account of these investigations and the conclusions to which they have led him, will appear in the INDEPENDENT PRACTITIONER early in the coming year.

IS DENTAL CARIES A MODERN DISEASE ?

For many years dentists have been informing their patients that caries of the teeth is owing to modern methods of living, especially to deprivation of the necessary lime salts by the vicious modes of the preparation of our food. Many practitioners have been in the custom of prescribing lime in various forms, as a prophylactic against decay. It has been repeatedly asserted in our societies, journals, and elsewhere, that the nations whose food was rich in phosphatic material had good teeth, and *vice versa*. Now the real facts of the case are, that a careful examination of race teeth actually and unmistakably disproves these assertions.

The attention of dentists seems now turned toward the investigation of this subject, and it may be hoped that the result will be an increase in knowledge concerning a point that should have been unmistakably established long ago. We publish in this number

letters from valued correspondents, which indicate the contradictory views heretofore held, and show the great need there is for a more careful examination of the craniums of the extinct races, where such are obtainable. Our Rome correspondent promises an investigation of the skulls preserved there, and residents of other countries or localities affording opportunities for anthropological study are earnestly invited to make examinations as thorough as circumstances will permit, and to transmit the record to this journal for publication.

The editor of the *INDEPENDENT PRACTITIONER* is not the first in this field, by any means. Dr. J. J. R. Patrick, of Belleville, Illinois, has made some careful investigations, the results of which have been published, and Dr. Rollins, of Boston, we are informed, has examined the skulls at Cambridge, though we are not aware that he has published anything upon the subject. There are also others to whom credit should be given for original research, and we hope the list will be largely extended in the coming year.

TO OUR SUBSCRIBERS.

With this number will expire a large number of subscriptions to the *INDEPENDENT PRACTITIONER*. We hope that there will be very few of them who will not desire the journal for the coming year. If we do not make it worth ten times the price of subscription, it will be because some unforeseen catastrophe awaits us. Its proprietors have in store some announcements, which they hope to make in the January number, that will be a guarantee of its future excellence. We might publish, from men of the highest standing in the profession, letters of commendation and expressions of their appreciation of the present value of the journal, but we prefer to let it speak for itself.

We hope that such as desire it for the coming year will send in their subscriptions at once, and thus secure its prompt reception. If there be any who wish its discontinuance, they should notify us promptly. Subscription blanks will be enclosed to those whose term expires with the present number. Send all business communications to the New York office.

CREDIT TO WHOM CREDIT IS DUE.

The article entitled "Dental Periostitis ; The Grindstone Cure," in the October number of this journal, was, through a misunderstanding, printed as though written expressly for us. We were indebted for it to the courtesy of Dr. J. Edw. Line, editor of *The Odontographic Journal*, who sent us a copy in advance of his own publication of it. As the INDEPENDENT PRACTITIONER was out a few days before the *Odontographic*, he had the gratification of seeing it in another journal, without the proper credit, before its appearance where it properly belonged ; a joke which he perhaps did not fully appreciate. Our excuse is that we supposed we were *personally* indebted to our friend Line, and not to the editor of the best dental quarterly published.

VISITING LISTS.

From the publishers of that excellent journal, *The Medical and Surgical Reporter*, of Philadelphia, D. G. Brinton, M. D., editor, we have received The Physicians' Visiting List for 1884, containing more tables than we have here room to enumerate.

We have also to acknowledge the receipt of the visiting list issued by the well known medical publishers, P. Blakiston, Son & Co., full of information useful in every medical emergency. These pocket lists are essential to every physician, and should have a place in the operating case of every dentist, for the proper registering of each prescription and case of office treatment, aside from that inscribed in the dental register.

HEAR BOTH SIDES.

We are not responsible for the opinions of contributors. There can be no fair discussion nor entire understanding of any subject, unless both sides be heard. Therefore we welcome all shades of opinion, asking only that they be intelligently and courteously presented. This journal aims to be the free unfettered organ of the profession at large, and if it accomplishes that it must frequently present articles which many will condemn. But, *Audi alteram partem*, is the only safe motto.

ADDING STRENGTH TO STRENGTH.

The *New England Journal of Dentistry*, which has heretofore been edited and published impersonally, in its last number announces its syndicate and publishes the names of its editors. It has a number of accessions to its corps of collaborators, and will enter upon its third volume with brighter prospects than ever. The INDEPENDENT PRACTITIONER acknowledges the compliment paid in adopting its method of publication, and wishes the *N. E. Jour.* abundant success. Good as it has always been in the past, we shall expect that it will be better in the future.

RESPECT OUR IDENTITY.

The editor of the *Missouri Dental Journal*, in accrediting articles, confounds the INDEPENDENT PRACTITIONER with the *Dental Practitioner*. It was the latter that published Dr. L. Ashley Faught's article on "The Business Qualifications of Professional Men." The INDEPENDENT PRACTITIONER does not desire to be held responsible for the presentation of such sentiments.

COMBINED FILLINGS.

Robinson's Textile Tin, or any other material of like character, may be so combined with oxy-chloride or oxy-phosphate of zinc, as to make a filling that largely possesses the advantages of both. Separate the fibres and thoroughly wet them with the fluid, then mix to a paste with the powder and use like an oxychloride.

Current News and Opinion.

DR. GREGG VERSUS BACTERIA.

Different scientific and non-scientific journals have, for some time, been making allusions to the researches of R. R. Gregg, M. D., of Buffalo, who thinks he has made discoveries that entirely disprove the active influence of bacteria in the promotion of putre-

faction, and quite drive a consideration of them from the domain of medicine. He lately read a labored paper, entitled "The Bacterian or Germ Theory of Disease Overturned," before the Buffalo Microscopical Society. That his assertions might be thoroughly considered, the society appointed a committee of acknowledged microscopical and scientific ability, to examine his methods and analyze his theories. That committee has made an exhaustive report, of which we present an abstract.

Dr. Gregg, in his paper, said: "I have controverted the theory of the bacterists for years, and contended that all their so-called bacteria of disease were nothing more or less than so many different forms of fibrine."

After detailing Dr. Gregg's method of conducting his examination, the objective used, and the very crude methods of illumination, the committee says:—

"It will be seen that the doctor disregards all methods of identification save one, namely: appearances in a dry film of albuminous material, seen under circumstances about as conclusive as that of taking the topography of a country from a balloon through a fog. * * * * The specimens prepared from rotting fibrine were made up of bacteria, as is plainly revealed by careful staining and micro-chemical tests. The committee have separately and collectively made experiments to test the identity of fibrinous forms with bacteria, and it may be positively stated that the results are in every case negative. In no single instance was fibrine found to imitate bacteria in its behavior toward the various reagents and chemical tests that are used in the study of bacterian forms.

* * * * It is unnecessary to follow this subject further. It must be apparent to any one, having one grain of manipulative skill and the slightest acquaintance with correct methods of microscopical investigation, that no reliance can be placed upon such observations, and that all conclusions based upon them may be dismissed without serious consideration."

This report should finally dispose of and put at rest the theories of Dr. Gregg concerning the spontaneous organization of fibrine, and its simulation of bacterian forms.

ORAL PATHOLOGY.

A red line on the gums, with fetor and metallic taste, indicates ptyalism.

A blue line—lead poisoning.

Great sponginess, with sloughing and great fetor—scurvy.

A red line about the teeth and along the gums—periostitis.

Purple gums and purulent discharge—necrosis.

Gums hot, red, swollen, very tense—phlegmon.

Gums inflamed and soft, with fluctuation—alveolar abscess.

Swollen gums, fetid discharge, mucus patches, shallow ulcers under the tongue, eroded palate, eruption of mouth, skin, and scalp, gums everted, fetid matter from necks of teeth—syphilis.

A white-coated tongue denotes—febrile disturbance.

A brown, moist tongue—indigestion.

A brown, dry tongue—depression, blood-poisoning, typhoid fever.

A red, moist tongue—feebleness, exhaustion.

A red, dry tongue—inflammatory fever.

A red, glazed tongue—general fever, loss of digestion.

A tremulous, moist and flabby tongue—feebleness, nervousness.

A glazed tongue, with blue appearance—tertiary syphilis.

AMERICAN ACADEMY OF DENTAL SCIENCE.

The regular annual meeting of the American Academy of Dental Science, was held on the 7th of November, 1883, at Young's Hotel, in Boston. The annual address was delivered by Dr. N. W. Kingsley, of New York. The dinner, which is a prominent feature of the annual gathering of the Academicians, was as usual, a very social and pleasant affair. The officers elected for the ensuing year are as follows:

George T. Moffatt, President ; J. H. Batchelder, Vice-President ; T. E. Banfield, Recording Secretary; E. B. Hitchcock, Corresponding Secretary; E. H. Smith, Treasurer; H. C. Meriam, Librarian; C. P. Wilson, E. C. Briggs, J. S. Mason, Executive Committee. Drs. T. O. Loveland and A. B. Jewell, were elected Active Fellows.

The Treasurer's report showed a flourishing financial condition.

H. F. HAMILTON, Secretary.

DAMAGES FOR ACCIDENTS DURING ANÆSTHESIA.

A suit brought against a dentist in New York city for negligence in allowing a piece of a tooth to drop into a patient's throat, which after causing the patient to suffer with a cough was expectorated at the end of a month, was recently decided against the defendant, who was obliged to pay five hundred dollars damages. The case was appealed but the judgment was sustained. This recalls the case of a boy who died under the influence of nitrous-oxide gas, being suffocated by a molar tooth that slipped out of the forceps and became impacted in the larynx. In such cases a dentist should be both competent and willing to perform tracheotomy, for the patient will generally die of suffocation before a surgeon can be summoned.—*Phil. Med. Times.*

DR. LORD'S INSTRUMENTS.

No dentist should be without Dr. Lord's sickle-shaped instruments. For smoothing approximate surfaces of incisors and bicuspidals when stained or menaced by decay, they do excellent service. They are also valuable for trimming ragged marginal walls of approximal cavities, and for finishing fillings in such cavities, whether gold or plastic. A familiarity with these instruments suggests their use in many cases. For removing salivary calculus, they render efficient aid; also for tucking the rubber dam about the cervical portion of such teeth as it surrounds, preparatory to filling.

C. E. F.

AN IRRESPONSIBLE CALL.

Some of the English journals are publishing a circular issued from New York, inviting the co-operation of foreign dentists in the formation of an International Progressive Science Society, and they indulge in covert allusions to the assurance that prompts the movement. Before they bring a charge of assumption against American dentists generally, they should ascertain that the circular in question was issued with the knowledge and approbation of the profession here, or that it comes from a source that will command the attention of our dentists.

A RIGHTEOUS JUDGMENT.

Some conscienceless parties having placed upon the market an imitation of Horsford's Acid Phosphate, the Supreme Court of Rhode Island, in July last, enjoined its further sale in any package which was a substantial or colorable imitation of Horsford's preparation. This injunction was violated, and the Court on the 24th of September issued a writ of attachment against the parties, and fined them three hundred dollars each. So much for trying to obtain a reputation by stealing it.

DIO LEWIS'S MONTHLY.

For a generation Dr. Lewis has been known as an original and pungent writer upon medical and hygienic science, and his crisp paragraphs have been extensively quoted, especially by the secular press. He has now established a monthly journal in New York, which is quite unique in its scope, attractive in its appearance, and very readable as a matter of course. Each number contains about one hundred pages, and there is not a dull paragraph in a volume.

LYON'S TOOTH-POWDER.

The profession is familiar with Dr. I. W. Lyon's Tooth Tablets, as they have been a standard dentifrice for years. The tooth powder that he has recently placed upon the market is equally good, less in price, and is put up in enameled tin bottles, with a sprinkler top, a form that will at once commend itself as one not liable to the mishaps of the glass bottle.

O. E. H.

TO REMOVE WARTS.

These troublesome excrescences may be removed by frequently touching them with chromic acid. Glacial acetic acid will produce the same result, but not as quickly.—*Scientific American*.

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